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HENRY V. POOR, Editor.

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American Railroad Journal.

Saturday, June 3, 1854.

Pacific Railroad.

The subjoined paper, upon the subject of the proposed railroads to the Pacific, was read before the American Geographical Society, on Thursday evening, the 1st inst., by H. V. POOR, Esq., *Editor of the Journal.* It was illustrated by a magnificent map of the society and by profiles of the Mississippi, Missouri, Ohio, Tennessee, Cumberland, Arkansas, Platte, and Rio Del Norte rivers; and also by profiles of the several routes proposed. The paper derives the greater part of its value from the illustrations used on the occasion. We have, however, concluded to copy it into the Journal, erasing such allusions to the maps and profiles as would not be readily understood without them.

We would refer the reader to a valuable map prepared by E. F. Johnson, Esq., and which accompanied the number of the Journal of the 12th of November, last. Subscribers to the Journal since that date can be furnished gratuitously with copies of this map, on application by letter or otherwise.

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In an age particularly distinguished for its progress in the mechanical sciences, it is natural that an achievement which presents the greatest difficulty, to be followed by the greatest reward that has yet crowned human effort, should possess a paramount interest with a people as utilitarian as our own. It is characteristic of them that they never rest satisfied until they have brought into their service whatever improvements in the economy of life, science has discovered and art wrought out. The pioneer, as he moves forward over the prairies of the West, carries with him the railway, —as necessary in his catalogue of wants as are the axe and the plough. The railway keeps pace with the frontier line of settlement; so that the crop this year, of the frontier farm, in the great march of civilization, has only to be held to the next, to be sent whizzing to the Eastern market in the rail-car, at the speed of 30 miles to the hour!

The progress of railways kept pace with the onward march of our people, till the Mississippi was fairly crossed, when the intermediate territory to the Western ocean, was cleared at a single bound. Upon its shores have been achieved in five years, what have required two hundred to accomplish upon the Atlantic coast. Five years have witnessed the birth and growth, to the features of a mature manhood, of a mighty State upon the Western slope of the continent, which, in addition to more than *fabulous* wealth in its soil, commands the trade of the Pacific Ocean and the innumerable lands it washes. The focal point of all this commerce is the little island upon which we stand. To reach and enjoy this commerce, we have been unable to bring into use the greatest of all human contrivances—the *railway.* So accustomed have we become to the luxury of its use, that we cannot visit a neighboring village, a few miles distant, without it. It is proof conclusive that no business nor people worth visiting exist, where no such work is found. If we have, perchance, a country friend, whose *locus* cannot be found in a guide-book, we coolly inform him that when the railroad finds him out, we will try to. What wonder, then, that we are impatient at being cut off from California, from Oregon and Washington Territories, from the Pacific Ocean—its beautiful shores and islands teeming with wealth and busy populations, and ready, if we could reach them, to pour a flood of wealth into the lap of our people. "We must have a railroad to the Pacific," is the demand of a great nation. How shall we get it? is the problem before us for solution.

The American Geographical Society has not shown itself indifferent to a subject which is exciting such general and profound interest. The object of its organization was, to collect and diffuse "*geographical information.*" It was felt that there was no more appropriate or interesting field for their labors, than that portion of the country through which is to be constructed the great commercial avenue to the Pacific. As the most important step toward accurate geographical ideas is an intelligible and authentic map of the earth's surface, one of the first labors of our infant society was to construct the magnificent one which now hangs upon our walls. This map, though unfinished, is by far the most complete of the kind yet executed of the western portion of the territory of the United States, and presents to the eye an amount of information that can be had from the perusal of no other single work. The construction of such a map was a proper initiative for a society like our own. When completed, so as to embrace the whole of the United States, with the territories contiguous, its value, as a means of diffusing correct information, will repay, not only its cost, but all the efforts that have yet been put forth to found and rear the "Geographical Society."

"A railroad to the Pacific" is a complex proposition, in which are united numerous elements entirely *dissimilar* in themselves. One of these, and a very important one, is the degree of inclination of the earth's surface upon the whole, or any part of the line. Another are the obstacles in the way of a *direct* line. A third is the ability of the route to supply to the road wood and water. A fourth are the expedients to be resorted to for the crossing of rivers and mountains. Considerations like these belong to the *scientific* or engineering department of the road. To *another* department belongs the duty of providing the ways and the means; a third, the general administration of affairs. In a work like the Pacific railroad, it is not easy to say which of the departments involve the greater difficulties. The engineering, probably, presents the fewest, as, at the present day, nothing is difficult or impossible with *money.* The tunneling of the mountain barrier itself is a mere question of dollars and cents. These supplied, and the engineer has nothing before him but *plain sailing.*

It will be seen, from what I have said, that were I competent, I might occupy a month of your time in discussing the subject of a Pacific railroad, without saying all that was interesting or desirable to be known. A single paper, for an hour's entertainment, were it only to touch upon the various heads embraced in the general proposition, would be valueless for its superficiality. Were it to attempt to do more, it would be insupportable from its prolixity. I shall not attempt either, but what will be much more interesting and useful, I propose to offer a few remarks in description of some of the leading characteristics of the country upon the several routes proposed, with such observations as these may naturally suggest, bearing upon the general question. In other words, I propose to read a brief paper, the principal object of which will be, to illustrate the subject of a railroad by the use of the map and profiles which you have before you.

The United States, in reference to its geography, may be divided into three grand, well-defined divisions, each possessing characteristics peculiar to itself. They may be termed generally the *Eastern*, *Middle*. and *Western* divisions. The first lies between the crest of the great Allegheny ridge and the Atlantic; the second extends from the former to the commencement of the great American desert, at the base of the Rocky Mountains; the third is, the intermediate territory from the last to the Pacific Ocean.

With the first and second of these divisions most of us are personally familiar. There are some strong points of resemblance between them. They have a nearly uniform climate upon similar parallels. They are sufficiently watered from rains, and wooded, for agricultural purposes. They are both penetrated by navigable rivers. The surface or topographical features of both are favorable to the easy construction of railroads and ordinary highways. In these particulars, these divisions are in fact so homogenous in their leading aspects, that, contrasted with the third, they may be regarded as one.

The third grand division presents a most striking contrast to the two already described. Perhaps its most remarkable characteristic is its great general elevation above the level of the sea, as it is to this elevation that many of its other peculiarities are due. This feature must be thoroughly studied and understood, in order to form a correct idea of the character of the country on the several routes, and the difficulties in the way of the construction of a railroad.

The Mississippi river, in connection with its main affluent, the Missouri, is the dividing line between two great *planes*, one descending to its *left* bank from the summit of the Alleghenies, the other to its right, from the summit of the Rocky Mountains. The uniform and gradual descent of different portions of this great river is very remarkable. From the Gulf of Mexico to the grand falls of the Missouri, there is no obstacle to the running of light-draught steamboats at all seasons of the year when the river is unobstructed by ice. From the mouth of the Ohio to the Gulf, a distance of about 1200 miles, the fall is 275 feet, or nearly 2 3-10 inches to the mile. From the mouth of the Ohio to the Grand Falls of the Missouri, and to the Falls of St. Anthony on the Mississippi, the descent of the two rivers is nearly uniform; that of the Missouri being the greatest by about one inch in the mile. From the Falls of St. Anthony to the junction with the Missouri, the descent is about 495 feet in a distance of 760 miles, or at the rate of 6½ inches to the mile. From the Grand falls to its mouth, the descent of the Missouri is about 1900 feet in 2600 miles, or at the rate of 7 8-10 inches to the mile. Gov. Stevens estimates the elevation of the river, at the mouth of the Yellow Stone, at 2000 feet above the sea, and at the Grand Fall 2300 feet. As the distance between these points is about 700 miles, the descent of this portion of the river is only about one-half as great as it is near its mouth. We presume that the first few hundred miles of the Mississippi, immediately below the Falls of St. Anthony, exhibits a similar peculiarity. If so, the upper portions of both rivers show a remarkable fact in the topographical features of this country, and present a striking exception to a general law which seems to be observed in the fall of rivers.

At the Grand Falls of the Missouri, the river descends over a series of cascades 368 feet, in the course of 18 miles. Above the Falls, the inclination of the river does not appear to increase very rapidly, as it is navigable for canoes for five hundred miles, and to a point within 38 miles of the waters of Clarke's Fork of the Columbia. This was the route pursued by Lewis and Clarke, on their way to the Pacific. At this point their expedition left the river, the elevation does not probably exceed 3168 feet. From thence to the source, in a distance of about 25 miles, the rise is probably not less than 3000 feet. The uniform inclination of this great river, throughout its whole course, constitutes one of the most remarkable facts in the topographical features of the North American continent.

As before stated, the Mississippi and Missouri rivers mark the boundary of two great planes, reaching to them from the summits of the mountain ranges on either side. A striking contrast presented by these planes, is in their *dip* or inclination to the point of their intersection, and their geological structure. While there is a great difference in the elevations of their upper angles, there is still greater difference in the inclination of the rivers which traverse them. The rock forming the Allegheny ranges being chiefly limestone, the rivers that fall from them have cut for themselves deep channels, far below the general surface of the country. They consequently have a gentle flow, with sufficient water to render them navigable for a great portion of the year. The main tributary entering the Mississippi from the East is the Ohio. The descent of this river from Pittsburgh to its mouth, a distance of 975 miles, is 424 feet or at the rate of 4 32-100 inches to the mile. Following up the Allegheny to *Olean*, in the State of New York, the head of steam navigation, a distance of 250 miles, we find the descent rapidly increasing. The elevation of this point is 1403 feet above the sea, or 704 above Pittsburgh, showing a fall of 2 feet 8 inches to the mile. In 50 miles more we reach the sources of the river, in the town of Friendship in this State, 1678 feet above the sea, and 2456 miles from the Gulf.

If we examine the Tennessee and Cumberland rivers, which, with the Ohio, drain the greater part of the western slope of the Allegheny range, we find them possessing the same general characteristics as the Ohio. The Tennessee river at Chattanooga, 600 miles from its mouth, is 351 feet above the Ohio, showing a fall of about 7 inches to the mile. Above Chattanooga, the ascent increases rapidly; and upon entering the State of Virginia, about 300 miles from Chattanooga, an elevation of about 1000 feet is obtained. From the State line to its source, the ascent is about 1550 feet, in about 125 miles.

The Cumberland, lying within the circle described by the Tennessee, has less descent; the fall from Nashville to its mouth being only 104 feet, in a distance of 240 miles, or at a rate of 5 1-5 inches per mile. The inclination of the head waters of the Cumberland river does not differ much from those of the Tennessee.

I have been particular to give you the inclination of the rivers draining the western slope of the Alleghenies, or the great *eastern* plane of the Mississippi, that you may better appreciate the consequences that result from the greater slope of the corresponding plane upon its western side. The slight descent of the Ohio, Tennessee and Cumberland rivers, give them gentle currents and deep channels, peculiarly adapting them as avenues of commerce. On the other hand, in ascending the table-lands which fall towards the right bank of the Mississippi and Missouri, we find that the rivers which traverse them have an inclination nearly *ten* times greater than those which enter the former upon the left. For the purposes of this paper, the comparison will be confined to the Arkansas and Platte, as these define *two* routes for the proposed road, and constitute, from their positions and general directions, appropriate contrasts to the Ohio, Cumberland and Tennessee, and also afford the best illustration of some of the peculiarities of the great western plane they water.

The Arkansas river, entering the Mississippi only about seven hundred miles above its mouth, within what may be termed the great *delta* of the Mississippi, and at an elevation of upwards of 150 feet above the sea, the lower portion of it presents some of the characteristics of its recipient. It has a steamboat navigation to *Fort Smith*, about 500 miles, by the course of the river.

In this distance the descent is probably 250 feet In longitude 97° west from Greenwich it probably reaches about the same altitude as the *Platte* River at its mouth in longitude 96°. At these respective points the two rivers present similar characteristics, having rapid currents over wide sandy bottoms with low banks, and are entirely unfitted for any commercial purposes. Their elevations above the sea are about 1000 feet. As we ascend the great *plane*, the two rivers maintain nearly the same altitude, showing a remarkable uniformity in the general surface of the country. From the mouth of the Platte to Fort Laramie the distance is about 575 miles, and the descent of the river 3,550 feet, showing a rate of fall of about six feet to the mile, or *sixteen* times greater than the Ohio. From Fort Laramie, to the South Pass, the descent is at the rate of 10½ feet to the mile in 185 miles; the crest of the Rocky Mountains at this point being 7,490 feet above the Sea. The descent of the *head* waters of the Platte are nearly five times greater than that of the head waters of the Ohio. The rate of the fall of the *Arkansas* very nearly corresponds to that of the Platte. From the great Bend of this in longitude 98 west

from Greenwich to Bent's Fort, which like Fort Laramie, lies at the base of the mountains, the descent of the river is 2,300 feet, in 311 miles, or, at a rate of 7½ feet to the mile. From Bent's Fort to the summit of the *Sangre Dez Christo* Pass, the descent is 4,942 feet in 121 miles, which is at the rate of 40 feet to the mile. Bent's Fort is 3,858 feet above the sea, and the summit of the Sangre De Christo Pass, is 8,800 feet according to Capt. Gunnison. The fall of the upper portion of the Arkansas is more than twenty times greater than that of the Allegheny.

Another great river possessing characteristics very similar to the above, though having a different direction and outlet, is the Rio Del Norte. All three take their rise in the same great elevated *Plateau*, the Platte and Arkansas draining its Northern and Eastern, and the Del Norte its Southern and South Western slopes. The descent of the upper part of this river is much greater, probably, than either of the former. From San Felipe, in latitude 35° 30′ to a point near the Mexican boundary, the river falls at the rate of 4 feet per mile, San Felipe is 5,158 feet above the sea, Santa Fe 6,846. San Felipe is more than 300 miles south from the source of the river in the famous *Coochatopee* Pass, the water from the southern slope of which fall into the Del Norte. At the rate of twenty feet to the mile, which is only one half of the descent of the Huerfano from Bent's Fort to the Sangre De Christo Pass, and which Fremont and Heap describe as a very level route, we have 11,158 feet as the elevation of the Coochatopee Pass, which is only 76 feet higher than the measurment of Gunnison makes it; viz. 11,082 feet.

It must be borne in mind that the elevations I have given are not those of mountain *summits*, but of the lowest depression between them, such as are followed by the water courses and have been selected on account of their great depression and favorable features as the great routes of travel to the Pacific. The general elevation of the neighboring planes is much greater, while upon all sides of these *passes* tower mountains covered with perpetual snow.

It is easy to see that the inclination of the above rivers entirely unfits them for navigable purposes. They have wide shallow channels with beds but slightly depressed below the general elevation of the country contiguous. In some parts of their course they nearly lose themselves in the sands over which they run. In many places the Del Norte disappears for miles, presenting when it re-appears its full volume of water.

These facts render the country traversed by these rivers inaccessible by the *steamboat*, which has thus far been the pioneer in the westward movement of our people, and constitutes one of the great obstacles to the construction of a Railroad to the Pacific.

The foregoing remarks have been descriptive of the *Eastern* and *Southern* slopes of the great Rocky Mountain Range. Upon reaching the summit of the plane or plateau from which these mountains rise, we find it extends with very little depression, except where it is intersected by the waters of the Colorado and Columbia, to the Sierra Nevada on the Pacific. The great uniform elevation of the territory embraced within these mountain ranges, is one of the most distinguishing features in the topography of this Continent, and one of the most remarkable of the globe. Nearly every portion of it is thickly studded by ranges of mountains some of which vie in elevation with those that enclose them. If possible, the country is still more barren than that already described. Throughout is the same absence of water and wood. The sands drink up the feeble streams as they descend from the snowy hills. Nothing can be cultivated except by irrigation, which is confined to the narrow bottoms of the water courses. All else presents the desolation of the desert in all its hideousness. From North to South, this desert extends from an unknown distance below the Mexican boundary nearly to the British Possessions, and probably covers the larger portions of Oregon and Washington territories. Its breadth embraces about 22 degrees of longitude and measures from 900 to 1100 miles. Its general elevation is about 4,500 feet, while throughout its whole extent rise mountains from 10,000 to 15,000 feet high. Within it is the desert of the Great Salt Lake which is elevated 4,200 feet above the sea, and which has a system of mountains and rivers peculiar to itself.

The first grand consequence that results from the great elevation of so large a portion of our continent, is the absence of *rain*. Its height above the sea would largely reduce the quantity, were there no other causes which influence the same result. Either side of the great plateau is flanked by the ranges of the Rocky and Sierra Nevada Mountains, which, intercepting the moisture borne into the interior from the sea, precipitate it upon their lofty summits. This fact explains the cause of the immense masses of snow which collect in the mountain gorges, particularly of the Sierra Nevada. Upon crossing these mountains into the great desert, the snow which accumulates in such immense bodies upon the western slopes, disappears. The same fact is noticed upon the Rocky Mountains, although their influence is not so striking as that of the Sierra Nevada, from the greater elevation of their base, distance from the sea and the drier atmosphere by which they are surrounded. Upon their eastern slopes only a small amount of moisture falls. This is collected upon the lofty mountains, whose hights are sufficient, by the changes of temperature which they cause, to disturb the ordinary equilibrium of the atmosphere, and condense upon their summits the moisture held by it.

This great elevated plateau which embraces the Eastern and Southern slopes of the Rocky Mountains, extending from 250 to 300 miles from their base, presents all the characterstics of a true desert. On the East the boundary of this desert may be described by a line drawn from the mouth of the Yellowstone to the great bend of the Arkansas near the point of intersection of the parallel of latitude 38, with longitude 99. The line thence extends very nearly South, inclining a little to the west after entering Texas and inclining to the the East again on approaching the Rio Grande, and leaving a wide belt of desert country East of the river, to its mouth. Within the limits of this desert is the great Llano Estacado of Texas, an elevated and treeless plain. In latitude 31, 30, Bartlett's Expedition crossed it, and for seventy miles from the Choncho to the Pecos, found no water. In latitude 32, 30, its width is more than double the above. Between the Pecos and the Rio Grande a distance of about 200 miles, is a high barren plain, portions of it being 5000 feet above the sea.

One of the most remarkable features of portions of this great desert, particularly that of the great Salt Lake basin, is in aspect of *newness* which it presents. Rain is the grand disintegrator of the earth's surface. Where it does not fall, the lapse of ages produces no perceptible change in the aspect of nature; consequently portions of the great American Desert present the same appearance they it did ten thousand years ago. It seems not to have been disturbed since the warring forces of nature laid down their arms.—This warfare would appear to have ended but yesterday. The yawning chasms, the blackened hills, the angular and jagged masses of rock piled up in endless confusion, the heaps of scoria glistening as if it ran from the furnace of yesterday, the vast plains unenlivened by a single specimen of organic or animal life, all bear witness of the external action of those terrific agencies, which now quietly repose in the bowels of earth. Over the scene of their warfare, through the agency of milder forces, no veil has been thrown. It remains, and always will remain, intellegible alike to the lettered and unlearned, a record of a great crisis in the earth's history.

Throughout this desert wherever running water is found, its sources are always in lofty mountains. These streams constitute the oases of the desert and are often times seperated by *jornadas* or sandy plains without water, all the way from 10 to 100 miles in extent. In the winter, which is the rainy season, these are crossed by mule trains with comparative safety, as portions of them abound in grass. In the summer or dry season they are nearly impassable both for man or beast.

Such is not an overdrawn picture of the physical characteristics of a territory embracing nearly one half of the breadth of the North American Continent, and over which must be the route of most, if not all, the proposed Railways to the Pacific. I have been particular not only to describe it with sufficient distinctness for the object I have in view; but, to contrast its peculiarities with those portions of the country with which we are all familiar. In this manner only can a correct idea be formed of the magnitude, and difficulties in the way of construction of a Pacific Railroad. We are apt to regard the obstacles to such an undertaking the same in *kind*, as those encountered in the construction of a railway east of the Mississippi River. If the Erie Railroad with a line of 500 miles, has cost $35,000,000, we take it for granted that a Railroad to the Pacific of 2000 miles of line would cost $140,000,000. Nearly every person in the United States takes the road with which he is the most familiar as a proper illustration of what the Pacific Railroad is to cost, and solves the problem by multiplying the length and cost of his own into the one proposed to be built.

To this fact we may ascribe the ready garrulity of all of us upon a subject, of which those who really appreciate its magnitude, approach to say the least, with awe.

The proposition before us involves the construction of a railroad for a distance of nearly 2000 miles through an uninhabited, and for the greater

part we may, say an uninhabitable country, nearly destitute of wood, extensive districts of it destitute of water; over mountain ranges whose summits are white with eternal snows; over deserts, parched beneath an unclouded sky, and over yawning chasms which the process of disintegration since the volcanic fires were put out, has not yet filled up. How is a sufficient force to be maintained upon such a work for its construction? And how is the road to be kept in repair and operated after it is built? How is the locomotive to be supplied with its food, wood and water? These are some of the questions that are to be discussed and solved; not the necessity that exists for the work. This requires no demonstration.

For the Pacific Railroad *five* routes are proposed, which may be designated as the Northern or Missouri, the South Pass, the Central or Benton's, the Albuquerque and the Southern. I propose to notice, briefly, the features peculiar to each.

1*st*.—THE NORTHERN ROUTE.

The proper base of this route, is the western extremity of Lake Superior. From thence it is prolonged in a generally westerly direction toward the great bend of the Missouri, the valley of which it follows to the summit of the Rocky Mountains. Crossing these, it falls into the valley of *Clark's* Fork of the *Columbia*, which it follows to its junction with the Columbia, and thence along that river to its mouth. This is a route, the entire practicability of which, Governor Stevens, as we understand, claims to have demonstrated. He entertains a belief that a practicable route may be found from the Columbia to Puget Sound by following up the *Yukima* and crossing the Cascade range in the Sno-qual-me Pass, which is about 3,500 feet above the sea.

A superiority claimed for the *Northern* route is the fact that it coincides with a great depression in the surface of the country extending entirely across the continent, as indicated by the course of its three great Rivers, the St. Lawrence, the Missouri and the Columbia. The St. Lawrence entering the Atlantic Ocean in longitude 56 takes its rise in Lake Superior in longitude 92, spanning in its course 36 degrees of latitude, or more than one half of this Continent. The distance from Lake Superior to the Pacific is a few degrees less, or thirty two degrees. Lake Superior is 690 feet only above the sea, from which it will soon be accesible to large vessels. Here then is a highway, already provided, extending one half the way across the continent and the best possible one for commercial purposes.

From the head of Lake Superior in latitude 47, the line has a generally westerly direction, crossing the head waters of the Mississippi at an elevation of about 1200 feet above the sea, and those of the Red River of the North, a short distance below Lake Traverse, at an elevation of about 1000 feet. From thence it gradually ascends the *coteau* of the prairies of the Missouri which are crossed at an elevation, probably, of 2300 feet.—On entering the valley of the Missouri, the route adopted by Gov. Stevens avoids the immediate vicinity of the river, keeping upon the elevated prairies for the purpose of obtaining a more direct and better line. In the latitude of the Grand Falls its line is seventy miles north of that point, and 1300 feet above, or 3600 higher than the ocean. This elevation is gradually increased till the summit of the mountain is reached, some 6000 feet above the sea. The formation of the mountain ridge is such as to allow of a tunnel of about two miles in length by which the elevation of the road bed will be reduced to 5000 feet. From the summit, the descent to the waters of the Columbia is very gentle. At about 100 miles from the summit, the elevation of the waters of the river are about 1000 feet higher than those of the Missouri at a corresponding distance; showing the same general fact with regard to the elevation of the country *west* of the Rocky Mountains, already noticed. By taking the Columbia River to its mouth, a favorable route, according to Gov. Stevens, may be had, involving easy grades and no insurmountable obstacles.

The advantages of this route, and in which it is probably superior to all others, are easier grades, a better supply of wood and water, a country upon its line, the agricultural capacities of which are equal to the sustenance of a population sufficient for the maintenance of the road, and the ease with which large bodies of men and material can be thrown upon the work.

The route involves much less rise and fall than any other. Water can probably be found in sufficient abundance upon all parts of its line. Upon the eastern division, abundant supplies of good timber are found on Lake Superior, the Mississippi, and the Red River of the North. From the last named river to the mouth of the Yellow Stone, timber is scantily supplied, and will have to be sought for *off* the main line. One source of supply will be Devils Lake, in latitude 49, longitude 99. The James and Mouse rivers furnish cotton *wood*; a wood, however, poorly adapted for mechanical purposes. On reaching the mouth of the Yellow Stone, pine and red cedar can be obtained from that river. An abundance of good timber is found in the valley of Milk river, On crossing the mountains, the line at once enters a wooded country, which continues on all the water courses to the Pacific. Throughout the whole of this portion of the route, the forests are composed entirely of evergreens,

Another striking advantage which this route possesses over all others, are the greater facilities it presents for cheap and rapid construction. *East* of the Rocky Mountains, the western shore of Lake Superior, the Great Bend, and the Falls of the Missouri, can each be made the base of independent systems of operations. From the two latter, the work of construction can be pushed in either direction. The great advantage resulting from the accessibility of its line, will be better appreciated when we remember that any required force of men and provisions can be thrown upon it by means of steamboat navigation, which reaches within about seventy miles from the summit of the mountains, upon the meridian of 110. To reach a corresponding point on any other route, 600 miles at least of desert must first be crossed, over which the only mode of transportation is by the ordinary wagon trains. It is this fact which constitutes the great obstacle to the construction of all but the northern route. The operations of a railroad company are like those of an army, the cost and difficulty of the maintenance of which increases in *inverse* ratio as the scene of its action is removed from its *base*. Upon all other routes the railroad as it progresses, must constitute the only means of keeping up communication with advanced portions of its line, and of supplying to it all the materials and force employed in construction. To a person familiar with the construction of roads of inconsiderable length, the increased delay and cost arriving from the causes named will be readily understood. It is not too much to say, probably, that a given amount of work upon any route proposed, except the Northern, will cost thrice as much, and occupy thrice the time that would be required for an equal amount upon any road east of the Mississippi,

Upon crossing the mountains, the Columbia will also contribute an important service toward the construction of the road, as the river can be used as a means of supplying material and labor. Govenor Stevens estimates that there are only 500 miles upon the whole of this route which cannot be made accessible by navigable water courses.

The objections to this route are, its extreme northern latitude, the great degree of cold which is known to prevail during the winter months, and the fact that it does not look to San Francisco as its Pacific terminus. These are serious objections. There appears, however, to be no sufficient cause for the apprehension which exists, that the snows will constitute any serious obstacle to the running of the trains. It seems to be well settled that only a small depth of snow falls upon the plains of the Upper Missouri. Horses find no difficulty in picking up a comfortable living upon them throughout the winter. They are the winter and summer range of countless herds of Buffalo. Parties left behind by Governor Stevens found no difficulty in crossing the mountains several times during the winter with horses. As soon as the mountains are crossed, and the waters of the Columbia are reached, the influence of the genial climate of the Pacific begins to be felt.

At the present time, San Francisco is the appropriate terminus of a railroad to the Pacific; but the best route by which it is to be reached remains to be shown. There is no evidence that the *Northern* is not the best route, even for San Francisco. This important city is, unfortunately, the most difficult of access by railroad of any point on the Pacific within our possessions. There is no sufficient evidence to show that it can be reached at all with any amount of money that can reasonably be expected to be obtained for such a work.

2*d*.—THE SOUTH PASS ROUTE.

The next route in order is the "*South Pass*." This route is now not generally insisted upon. The leading objections to it are the exceeding sterility of the country traversed by it, the almost entire absence of wood, and the immense elevation of a very extensive portion of it, as will be seen by the profile before us. More than 1000 continuous miles of it are elevated 4000 feet and upward above the sea. The South Pass summit is 7490. The Bear Mountain summit 1000 feet higher. These elevations, in the latitude in which they occur, render this a much colder route, and one more liable to snows than the Missouri. It would probably be impossible to keep up a communication on this route in the winter season,

a fact that must prove fatal to its claims, which, I believe, have ceased to be pressed. It may be proper to state, that this is the route so long and pertinaciously urged by Mr. Whitney.

3*d*.—CENTRAL ROUTE.

The next route is the "*Central*," or what is more commonly termed *Benton's* route. If the measurements of the height of the different passes upon it are correct, their great elevation must constitute a fatal objection to its adoption. The course of the rivers indicate that this route crosses the highest *table* of the *plateau* already described, it being the source of the Plate, Arkansas, Del Norte, and Colorado rivers, all running in different directions. The indications furnished by the course of the streams are against the practicability of this route; and I expect to see them confirmed by the results of examinations and surveys. It cannot be that the *lowest* summits are to be found, where rivers running in opposite directions. take their rise. The *Coochatopee* Pass cannot be far from the snow line at any portion of the year, and the glowing accounts which describe this valley as the favorite resort of summer, in mid-winter, must have been the creation of a poetic fancy. At 11,000 feet above the sea, in latitude 38, winter holds almost undisputed sway. Heap tells us in his Journal, that the mountains near the head of the Del Norte are called the *Wet Mountains*. He says that rain fell every day in the valleys, which was snow on the mountains, while he was in this vicinity about the middle of June. These facts attest their extreme elevation, and show that immense masses of snow must accumulate in their gorges in the winter season, without a doubt renering them impassdble. It should be borne in mind, also, that Capt. Gunnison makes the *Sangre De Christo* pass 8,800 feet high, a fact which destroys all probability of its practicability in the winter.

On entering the great desert west of the Rocky Mountains, the indications furnished by the course of the rivers are not favorable to the Central route, As yet, however, this portion of it is a *terra incognita*, about which it is useless to speculate until more is known. It is proper to state, however, that the claims of this route are strongly supported by Mr. Benton and Col. Fremont, than whom none should be better informed in reference to the country between the Mississippi and the Pacific.

4*th*.—ALBUQUERQUE ROUTE.

The next route in order is the Albuquerque route. East of the Del Norte, the line of this route will probably follow the valley of the Canadian, which pursues a favorable direction, with easy grades. After crossing the Del Norte, the route will take the Valley of the Zuni to the Colorado, which it will probably cross near latitude 35. From thence it can be carried either to San Francisco or San Diego, as the facts shall justify. The merits of this route are, the central position it occupies, its directness, and favorable alignment of its eastern portion. An examination of a map would, we think, indicate this to be the most favorable of all the southern routes, as far at least as the Del Norte. Beyond that point we do not yet possess sufficient information to speak with confidence. The great obstacles in the way of the construction of it are the lack of timber and water. It would probably suffer no obstruction on account of snows.

5th. THE SOUTHERN ROUTE.

The last to be described is the *Southern* route. This may be made a convenient one for all of the lower Mississippi Country, south of, and including Memphis. Assuming Shreveport in latitude 32,20 as a point, the line to be pursued will be a very direct one to El Paso upon the parallel of 32. From thence it will be continued over nearly the same parallel to the Colorado, near the mouth of the Gila, and thence by some route not yet defined to San Diego or San Francisco.

The characteristics of this route, do not differ materially from the one last described. East of the Rio Grande its construction will probably be more difficult. About 150 miles of it will be over the *Llano Estacado* or *Staked Plain*, a high barren and treeless table, lying between the head waters of the Colorado, Brazos and Trinity rivers of Texas, and the Pecos. The elevation of the line upon this table will be about 3,200 feet. From the Pecos to the Rio Grande, a distance of 200 miles, an equally barren and more elevated region is crossed. The summit between these rivers is 5000 feet high, which is the same as the proposed tunnel in the *Northern* route.

After leaving the Rio Grande, a still higher summit is probably attained. The general surface of the country, however, is favorable to the San Pedro, and probably to the Gila. At about the parallel of 32°, 30' according to Bartlett, "the Rocky Mountains suddenly drop off about eight miles south of the Copper Mines of New Mexico, (now Fort Webster,) and, with the exception of a few spurs, seem to disappear entirely. Here we emerge into the great plateau or table land, which with scarcely an interruption, extends more than a thousand miles to the south. The elevation of this plateau varies from 4000 to 5000 feet above the level of the sea, and is crossed by no continous range of mountains for the distance stated. Short, isolated, mountains and hills, alone appear at intervals, and these are sometimes separated by fifty or a hundred miles of plain.

The great mountain chain which so abruptly terminates near the Copper Mines as stated, again begins to appear in about the parallel of 31°, 20', a few miles north of the Gaudalupe Pass, through which runs Colonel Cook's road. The range is here called the Sierra Madre, and forms an almost unbroken chain through the entire length of Mexico. Within fifty miles to the south there is another pass for mules, but beyond this, none for more than 500 miles.

The Gila is closely hemmed in by elevated mountains for about one-half its length; or to a point about 50 miles below the mouth of the San Pedro river. Some of these mountains extend ten or more miles into the plain, so that it is an absolute impossibility to construct a highway near that river.

The district or belts of country which lies between the northern spur of the Sierra Madre, and the southern spurs of the Rocky Mountains, may be safely set down at from 80 to 100 miles in width, and extend entirely across the continent from the Rio Grande to the coast range of mountains on the Pacific. In it are no continuous chains of mountains, such as will present an impassable, or even a serious barrier to the construction of a railway. This plain is crossed at intervals of from 15 to 30 miles, with short and isolated ridges of mountains, having an elevation of from 1000 to 2000 feet above the plain, and running from north-west to south-east."

The absence of mountains on this route implies a corresponding absence of wood and water. It is probably more deficient in these than either of the routes before described.

The teritory upon its line is the most barren of all. Of the desent portion Mr. Bartlett states that not one-half per cent. is arable land.

Mr. Albert Pike, of Little Rock, Arkansas, in an address before the Southern Convention recently held at Charleston, speaking from his personal observations stated that the desert portion of this route was not worth a *farthing* an acre. For long distances neither stagnant nor running water is found, and trains cannot cross that portion of it between the Rio Grande and the Colorado without suffering severe privations.

On passing the Colorado we encounter the great California desert which is about 100 miles in breadth opposite to Fort *Yuma* and increases in width to the North. This desert is destitute of wood, grass and water. Between it and the Colorado is a belt of moving sand, which will probably oppose a serious obstacle to the construction and maintenance of a railway. The great California desert will have to be crossed by the three lower routes, unless a pass can be found to the North of Walker's Pass, which does not seem probable. It is this desert which is one of the most serious obstacles which all the Southern routes will have to encounter.

After the desert is crossed we come to the Southern prolongation of the Sierra Nevada Range, which constitutes another great obstacle to the Southern routes.

No practicable pass through them into the San Joaquin Valley has yet been found. They rise abruptly from the plains on either side not much elevated above the sea, to the height of over 3,500 to 5,000 feet, and involve grades altogether too steep for the operation of a railroad. Examinations still in progress, may discover more favorable passes, or show that the mountains can be tunnelled at a reasonable expense. By crossing directly to San Diego the summit would not be over 3,000 feet. It is problematical whether the proposed road can be carried to San Francisco at reasonable expense *West* of the Coast range.

I have thus given a few of the leading features of the country to be traversed by the routes of the proposed road. I have also, for a better understanding of the subject, contrasted some of the peculiarities of the Western portion of our Continent with the Eastern. I am aware that this paper is a most meagre and unsatisfactory statement of its subject, partly because we have so little accurate information, and from the fact that a work treating in a proper manner all the problems involved in the construction of a railroad, and in elucidating the peculiarities of the country upon its route, would be the labor of a life, and constitute of itself a good sized library. My object has been to indicate some of the leading conditions under which a road upon *any* route will have to be built. When these are thoroughly appreciated, we shall then go the right way to work. Having taken

the right direction, every step will carry us forward. Thus far we have been moving without compass or chart, a sport of every wind that blows.

I see no way in which either of the proposed roads can be built, without the efficient support of Government. Previous to a careful examination of the subject, I had supposed that the construction of *one* route, at least, could be secured by liberal grants of lands, and by contracts for mail service. I am now satisfied that, unless the general government will furnish a considerable portion of the cost, say $50,000 per mile, and upon favorable terms, the construction of a road upon any of the routes is out of the question.—The value of all the lands to be given by Mr. Gwinn's Bill would hardly equal the expenses of a preliminary survey. By Mr. McDougal's House Bill, the Northern route would secure a valuable grant, by means of which 500 miles of railroad probably could be built. Upon none of the other routes would a grant of lands be of any considerable value. I should be very sorry to have Government undertake its construction or management. Perhaps our people would be better off without the road. I believe there is no necessity for this. Let government advance an amount equal to $50,000 per mile, at an interest of 4½ per cent., and I believe private enterprise would advance the balance required, and guarantee the former from loss, and from the necessity of exercising any interference in the matter. I believe the government should not assume to designate the route to be adopted; but should leave this, and all other questions involved in the construction entirely to private sagacity and private enterprise. If, with the proposed amount of government aid, *two* roads can be built, let us have *two* routes, a *Northern* and *Southern* one.

If private enterprise will take up only one route, this fact should be viewed as conclusive evidence against the claims of all others. In this way can government shield itself from the charge of partiality, and avoid all entanglement with a work which it is neither competent to construct or manage.

A road upon some of the routes must be built. The wants of commerce, the genius of the age and of our own people demand such a work. *One* road would doubtless prove a fair investment.—*One* commercial avenue between two great oceans and between the lands which these oceans surround, *must* pay. As members of the American Geographical Society, or of a still broader community, let us do what lies in our power to aid a work which shall constitute a prouder monument of the progress of our people in the arts of Peace, than nations of the Old World have erected in commemoration of some great achievement in the arts of Destruction.

Indianapolis and Evansville Railroad.

We are informed that the Board, at their late session, contracted with Willard Carpenter and Company, to construct the Straight Line Railroad from Evansville to Indianapolis, in continuous sections by the first of December 1854.

Messrs. Carpenter and Love, resigned their offices as Directors, and John Law of Evansville, and Wm. F. Weld of Boston, were appointed to fill the vacancies. Henry D. Allis, of Evansville, was appointed Vice President, to fill the vacancy in that office. The work, we learn, will progress with increased energy.—*Evansville Journal.*

Baltimore, May 20th, 1854.

To the Editor of the Railroad Journal.

Dear Sir:—In your Journal of 6th May, you give a report of the case of Winans and Denmeads decided in the Supreme Court of the United States at its present term. Your readers ought to know that four of the Judges dissented from that decision which was carried by a majority of one. The dissenting Judges were the Chief Justice and Judges Capron, Daniel and Campbell. The opinion of the dissenting Judges was delivered by Judge Campbell. I herewith send it for publication that your report may be complete. You will see from the whole case that the Supreme Court does not decide that Denmead's car is an infringement of Winans' patent, but only that the question is one to be decided by a Jury. In coming to that decision the Jury will no doubt be strongly influenced by the fact that four of the Judges of the Supreme Court, have decided it to be no infringement, and that not one of them has said it is an infringement.

Supreme Court of the United States.

December Term 1853.

Ross Winans, Plaintiff in Error, Vs. Adam, William and Talbott Denmead, } In Error to the Circuit Court of the United States for the District of Maryland.

Mr. Justice Campbell.

I dissent from the opinion of the Court in this case.

The Plaintiff claims to have designed and constructed a car for the transportation of coal on railroads which shall carry the heaviest load, in proportion to its own weight.

This design consists, in the adaptation of the "conical form" "for the body of the car," whereby the weight of the load presses equally in all directions," does not "tend to change the form of the car," permits it "to extend down within the truck," lowering, "the centre of gravity of the load, and by its reduced size at the bottom, adding to its strength and durability. He claims as his *invention*, and it is the whole of the change he has made in the manufacture of cars; the making of the body of the car in the form of the frustrum of a cone."

It is agreed that in a circle containing a greater area than any figure of the same perimeter; that the conical form is best suited to resist pressure from within, and that the reduced size at the bottom of the car is favorable to its strength.

The introduction of the cars of the plaintiff, upon the railroad for the transportation of coal, was attended by a great increase of the loads in proportion to the weight of the car. The merits of the design are frankly conceded—Nevertheless it is notorious that there does not exist a very great variety of vessels in common domestic use, "of a conical form," or, "of the form of the frustrum of a cone," for the reception and transportation of articles of prime necessity and constant demand, such as water, coal, food, clothing, &c., &c.

It is also true that the properties of the circle, and of circular forms alluded to in the patent of the plaintiff, are understood and appreciated, and have been applied in every department of mechanic art.—One cannot doubt that a requisition from the transportation companies for cars of a diminished weight, and an increased capacity, upon the machinists and engineers connected with the business, would have been answered, promptly by a suggestion of a change in the form of the car. The merits of the plaintiff, seems to consist in the perfection of his design, and his clear statement of the scientific principle it contains.

There arises in my mind a strong, if not insuperable objection to the admission of the claim, in the patent for "the conical form," or "the form of the frustrum of a cone" as an invention.—

Or that any machinist or engineer can appropriate by patent a form, the properties of which are universally understood, and which is in very common use, in consequence of those properties, for purposes strictly analogous. The authority of adjudged cases seems to me strangely opposed to the claim. Hotchkiss vs. Greenwood ,11 How, 249—Lash vs. Hague—Web. pat. cas. 207. Winans vs. Prov. R. R. Co. 2 Story, 412.—2 Story, 190. 2 Car. & Kir. 1022.—3 W. H. & Gord, 427.

Conceding, however, that the invention was patentable, and this seems to have been conceded in the Circuit Court, the enquiry is what is the extent of the claim?

The plaintiff professes to have made an improvement in the *form* of a vehicle, which has been a long time in use and exists in a variety of forms.

He professes to have discovered the precise form, most fitted for the objects in view. He describes this form, as the matter of his invention, and the principle he developes applies to no other form.

For this he claims his patent.

We are authorized to conclude that his precise and definite specification and claim were designed to ascertain exactly the limits of his invention.

Davis vs. Palmer, 2 Brock 298:

The car of the defendants is of an octagonal form, with an octagonal pyramidical base. There was no contradiction in the evidence given at the trial, in reference to its description, nor as to the substantial effects of its use and operation. In the size, thickness of the metal employed in its construction, weight, and substantial and profitable results, the one car does not materially vary from the other.—The difference consists in the form, and in that, it is visible and palpable.

The Circuit Court, acting upon these facts of which there was no dispute, instructed the jury that an infringement, of the plaintiffs patent had not taken place. I do not find the question before the Court a compound question of law and fact.

The facts were all ascertained and upon no construction of those facts was the plaintiff, in my opinion entitled to a judgement.

In theory the plaintiffs car is superior to all others—his car displays the qualities which his specification distinguished.

The equal pressure of the load in all directions—the tendency to presrve the form notwithstanding the pressure of the load; the absence of the cross strain; the lowering of the centre of gravity of the load; are advantages which it possesses in a superior degree to that of the defendants.

Yet the experts say, that there is no appreciable difference in substantial results afforded by the two.

The cause for this must be looked for in a source extrinsic to the mere form of the vehicles, nor is it difficult to detect the cause for this identity in the results in such a source.

The coarse heavy cumbrous operations of coal transportation do not admit of the manufacture of cars upon nice mathematical formulæ, nor can the loads be adjusted with much reference to exactness.

There is a liability to violent percussions and extraordinary strains, which must be provided for by an excess in the weight and thickness of the material used then, unless the difference in the weight of coal is great, there will be no correspondent difference in the receipts of the transportation companies.

The patentee not exaggerating the theoretical superiority of the form of the car, overlooked those facts, which reduced its practical value to the level of cars of a form widely variant from his own. The object of this suit is to repair that defect of observation.

It is, that this court shall extend by construction, the scope and operation of his patent to embrace every form which in practice will yield a result substantially equal or approximate to his own.

In the instruction asked for by the plaintiff, "form and circumstances" are treated as more or less immaterial, but the verdict is claimed, if the defendants have constructed cars "which substantially on the same principle and in the same mode of operation accomplished the same result."

The principle stated in the patent applies only to circular forms:

The modes of operation in coal transportation have experienced no change for the skill of the plaietiff, except by the change from the rectilineal figure to the circular. The defendant adheres to the rectilineal form. The result accomplished by the use of the two cars is the same—A more economical transportation of coal. This result it is that the plaintiff desires to appropriate, but this cannot be permitted.

Curtis on patents. §4.–26.–27.–86.–87.–88.

2 Story, 408.–411.—

In the case of Aikin vs. Bemis, 3 Wood, and M. 349. the learned Judge said "when a patentee chooses to cover with his patent, the material of which a part of his machine is composed, he entirely endangers his right to prosecute when a different and inferior material is employed and one which he himself after repeated experiment, had rejected."

The plaintiff confines his claim to the use of the conical form, and excludes from his specification any allusion to any other. He must have done so advisedly.

He might have been unwilling to expose the validity of his patent, by the assertion of a right to any other.

Can he abandon the ground of his patents, and ask now for the exclusive use of all cars which by experiment, shall be found, to yield the advantages which he anticipated from conical cars only?

The claim of to day is, that an octagonal car is an infringement of this patent. Will this be the limit to that claim?

Who can tell the bounds within which the mechanical industry of the country may freely exert itself?

What restraints does this patent impose in this branch of mechanic arts?

To escape the incessant and intense competition which exists in every department of industry, it is not strange that persons should seek the cover of the patent act, for any happy effort of contrivance or construction—nor that patents should be very frequently employed, to obstruct invention and to deter from legitimate operations of skill and ingenuity.

This danger was foreseen and provided for in the patent act. The patentee, is obliged by law, to describe his invention in such full clear and exact terms, that from the description the invention may be constructed and used.

Its principle and modes of operation must be *explained;* and the inventor shall *particularly* "specify and point" out what he claims as his invention.

Fullness, clearness, exactness, plainness, and particularity, in the description of the invention, its principle and of the matter claimed to be invented, will alone fulfill the demands of Congress or the wants of the Country.

Nothing in the administration of this law will be more mischievous, more productive of oppressive and costly litigation, of exorbitant and unjust pretensions and vexatious demands, more injurious to labor than a relaxation of these wise and salutary requisitions of the act of Congress.

In my judgement the principles of legal interpretations, as well as the public interest require that this language of this statute shall have its full significance and import.

In this case the language of the patent is full, clear and exact.

The claim is particular and specific.

Neither the specification nor the claim in my opinion, embrace the workmanship of the defendants.

I therefore respectfully dissent from the judgement of the Court which implies the contrary.

Adaptation of Power on the Western Railroad.

A legitimate consequence of the incapacity of the motive power of the Western road of Massachusetts, is the report and resolution of a committee of the Board of Trade of Albany, setting forth the delays in landing and loading freight from the boats to the cars of the company at East Albany. The circumstance does not proceed from the eminently great business of the road as compared with that of other lines, although it is probably brisk; but from the fact that no additions have been made to the stock of freight engines for several years, and that those in use cannot take, singly, but *thirteen* cars of produce between Albany and Pittsfield, *nine* between Pittsfield and Springfield, and *thirteen* between Springfield and Worcester.

Compare such trains with those taken over the same grades on the Baltimore and Ohio road.

				Western.	Balt. & Ohio.
Ordinary load,	45	ft.	grade	13 cars.	30 cars.
Ultimate	"	"	"	"	45 "
Ordinary	"	83	"	9 "	18 "
Ultimate	"	"	"	"	27 "

The difficulties which attend the shipment of freight, by the principal avenue between Boston and the West, have become such as to call for a public expression of the feeling of those engaged in that business. Boats, loaded with grain, have been delayed four, five, or more days, awaiting a transhipment of their cargo to the railroad cars. Purchasers have been compelled to pay one cent per bushel more for having cargoes delivered on the East than on the West side, and large sums are paid for demurrage.

The Board of Trade have, in consequence, adopted the following resolution, and appointed a committee of five to confer with the officers of the road upon the subject.

Resolved, That in the opinion of the Board of Trade, the delays and hindrances to which we, in common with our merchants generally, are subjected, are of a character that call for and demand the application of prompt redress on the part of the Western Railroad Company; that we regard them as arising mainly, if not entirely, from the want of a full complement of freight cars and other rolling stock necessary to the prompt dispatch of freight and produce; and while we would not desire to censure the officers and directors of the company, we regard the hindrances and delays in the transhipment and delivery of produce and merchandize as entirely within their control, and an evil which can be fully remedied by the application of the proper corrective, viz: the furnishing of additional facilities for the transportation of property.

There is nothing in the route or capacity of the Western road, nor in the commercial wants of Boston, to prevent the transportation of half a million tons of freight yearly between Albany and Boston. provided the railroad can be properly equipped to do the business on proper terms. The present through business of the Western road is but about *one-tenth* of this amount.

The Sault Ste. Marie Canal.

Mr. Harvey of the Sault Canal, Mr. Bigelow Mr. Whitney, and other gentlemen who have passed the winter at Sault Ste. Marie, came down yesterday on the Steamer *Northerner*. They report all clear of ice, and that the steamer *Garden City* arrived at the Sault on Monday morning.

With regard to the progress of the Sault Canal in which the people of the lower Peninsula, and all others interested at Lake Superior, feel a deep concern, they report that probably eight-tenths of the earth and rock excavation have been finished. The length of the excavation from the head to the foot of the portage is 4,360 feet. The width of the excavation at the bottom is 64 feet. and at the top 100 feet. The sides of the canal are to be lined with stone for the whole distance, to prevent washing, and there are to be two locks, 350 feet in length, with foundation walls 10 feet in thickness, and they are to be strengthened by stone battlements on the outside, 12 feet apart. These locks will contain 15,000 cubic yards of stone masonry; A large portion of the timber is nearly out. The work during the winter has been done at great disadvantage, owing to the inclemency of the weather and to the depth of the snow, and the making of the ice during the night from water oozing out of the rocks. We learn that the financial arrangements of the company have not been very well digested, and that they have been compelled, in addition to the circulation of their own evidence of debt, to borrow of citizens at the Sault some $10,000. This perhaps is not very surprising, although it might have been avoided.

There is a strong prospect, as we learn, that the Canal will be finished within the stipulated time, and if such an event be within the bounds of possibility, it will be done; but should it not be done, there is little doubt that the next Legislature will grant the necessary extension, upon a proper showing, that it was physically impossible to complete it within that period. We do not pretend to say that it is so, nor have we been so informed, but such immense jobs of work generally occupy longer time than is anticipated.

Sufficient stone for one of the locks has already been got out of Malden, and some considerable progress has been made at Sandusky in getting out the balance of lock stone. There are now about five hundred hands employed upon the

work, and we understand they are contented, and will probably for the most part, remain during the season.

The plank road, and the railroad across the Portage, were both put in order, bridged and relaid, and were ready for use by the first of May. —*Detroit Inquirer.*

American Railroad Journal.

Saturday, June 3, 1854.

A large amount of matter designed for this week's paper is necessarily left out, to make room for the paper on the Pacific Railroad. We hope to have a more interesting variety in our next.

Stock and Money Market.

Without much improvement in quotations, we think the stock market is gradually becoming stronger. As money becomes more abundant, attention will again be turned to railroad securities for investment. The present low prices are quite independent of the mere question of value; and as soon as the causes which produced them are removed, they will regain their usual figures. A great deal has already been done toward accommodating ourselves to the present condition of the money market, and the diminished expenditures upon new works must soon be felt.

The foreign demand for bonds has not yet been renewed. There is, however, some domestic demand. The generally healthy state of our great interests must leave a large amount of surplus capital for investment in our public works.

Ohio and Mississippi Railroad.

The *Tribune* fears that the report that this company has sold $1,500,000 of its second mortgage bonds, is not entirely correct. It states, however, that enough have been sold to carry the road 87 miles, to the Jeffersonville road; and that when this point is reached, the road will "then earn the interest on the entire amount expended on the work."

Some months since the *Tribune* stated that $9,000,000 had then been expended. Adding $500,000 for subsequent expenditures, and the road up to this point must earn over $1,300,000, to pay the interest on the above sum!

This portion of the road will earn, for the first year, a sum not exceeding $350,000—probably a much less sum. Yet the *Tribune* continues to put forth such glaring falsehoods as the above, *selling* itself for the purpose of being used to impose upon the public. If the company is responsible for the statements in reference to its affairs which appear in the *Tribune*, it is not entitled to credit. If not, its duty is to disclaim them.

Terre-Haute and Alton Railroad.

The Alton Telegraph learns that the work upon the Chicago and Mississippi Railroad is progressing toward completion with all possible dispatch. The rails will be laid as far as Lexington, a point eighteen miles beyond Bloomington, on Monday. A large force is also at work upon the Chicago end, together laying nearly one mile of tract per day; and it is confidently believed that the entire line will be opened thence to Joliet by the 1st of July. There remains but about thirty-five miles to be laid down to complete the gap, when a great saving of time will be made, and much inconvenience from the changing of cars avoided.

Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of $100.

NAME OF COMPANY.		Miles open.	Capital paid in.	Debt.	Tot. cost of road and equipm't.	Gross Earnings for last official year.	Net Earnings for last official yr.	Dividend for do.	Price of Shares.
Atlantic and St. Lawrence...	Maine.	150	1,538,100	2,973,700	5,973,700	254,743	113,520	none	83
Androscoggin and Kennebec..	"	55	824,863	1,043,540	2,036,140	177,003	80,053	none	30
Kennebec and Portland.....	"	72	1,073,673	1,439,694	2,520,981	168,114	100,552	none	41
Port., Saco and Portsmouth..	"	51	1,355,500	123,884	1,459,384	208,669	.....	6	98
York and Cumberland,.....	"	20	285,747	341,100	713,605	23,946	11,256	none	24
Boston, Concord and Montreal.	N. H.	93	1,649,278	622,200	2,540,217	150,538	79,659	none	27
Concord	"	35	1,485,000	none.	1,485,000	305,805	141,836	8	104
Cheshire	"	54	2,078,625	720,900	3,002,094	287,768	55,266	5	35
Northern	"	82	3,016,634	.....	.....	328,782	163,075	5	49
Manchester and Lawrence....	"	24	717,543	.....	.....	.....	.....	6	83
Nashua and Lowell.....	"	15	600,000	none.	651,214	132,545	51,513	8	104½
Portsmouth and Concord....	"	47	.....	.....	1,400,000	.....	.....	none	....
Sullivan.....	"	26	.....	.....	673,500	.....	.....	none	12½
Connecticut and Passumpsic..	Vt.	61	1,097,600	550,000	1,745,516	.....	.....	none	21
Rutland	"	120	2,486,000	2,429,100	5,577,467	495,397	266,539	none	9
Vermont Central.....	"	117	8,500,000	3,500,000	12,000,000	.....	.....	....	8¾
Vermont and Canada.....	"	47	1,500,000	.....	1,500,000	Leased to the Vt. C		ent.	97½
Western Vermont.....	"	51	392,000	700,000	.....	Recently	opened.	none	....
Vermont Valley	"	24	.....	.....	.....	.....	.....	none	....
Boston and Lowell.....	Mass.	28	1,830,000	206,190	2,044,536	434,599	114,098	6	90
Boston and Maine.....	"	83	4,076,974	150,000	4,111,345	863,024	418,358	8	104¾
Boston and Providence.....	"	55	3,160,000	402,326	3,579,041	509,326	226,639	6½	82½
Boston and Worcester.....	"	69	4,500,000	590,541	4,850,754	887,219	413,289	7	100
Cape Cod branch.....	"	29	421,950	180,000	633,906	68,942	26,412	5	40
Connecticut River.....	"	52	1,591,110	286,363	1,802,244	258,220	102,098	4	57
Eastern.....	"	58	2,850,000	1,192,975	3,120,391	620,810	310,875	6	80
Fall River.....	"	42	1,050,000	6,208	1,050,000	294,183	126,589	8	97¾
Fitchburg.....	"	67	3,540,000	191,500	3,716,870	626,659	214,633	6	90
New Bedford and Taunton...	"	20	500,000	none.	529,964	188,442	46,839	7	117
Boston and New York Central	"	74	1,159,228	953,370	2,221,068	90,315	35,214	none	57
Old Colony.....	"	45	1,964,070	295,038	2,293,534	374,897	122,866	none	98½
Taunton Branch.....	"	11	250,000	none.	307,136	159,738	21,490	8	....
Vermont and Massachusetts..	"	77	2,233,939	1,139,615	3,207,818	244,323	13,144	none	15½
Worcester and Nashua.....	"	46	1,140,000	194,445	1,342,593	182,398	81,807	5	60
Western	"	155	5,150,000	5,319,520	9,953,258	1,525,224	746,736	7	96
Stonington.....	R. I.	50	.....	467,700	.....	240,572	110,892	....	66
Providence and Worcester...	"	40	1,457,500	300,000	1,791,999	291,417	120,892	6	95
Canal.....	Conn.	45	922,500	500,000	1,400,000	.....	.....	4	65
Hartford and New Haven....	"	72	2,350,000	800,000	3,150,000	639,529	294,269	10	120
Housatonic.....	"	110	.....	.....	2,500,000	329,041	168,902	none	....
Hartford, Prov. and Fishkill..	"	50	.....	.....	In progres	69,629	.....	none	....
New London, Wil. and Palmer	"	66	558,861	800,000	1,511,111	114,410	.....	....	..
New York and New Haven...	"	61	3,000,000	1,641,000	4,978,487	806,713	428,173	7	93
Naugatuck	"	62	926,000	440,000	.....	.....	.....	8	....
New London and New Haven.	"	55	750,500	650,000	1,380,610	Recently	opened.	none	40
Norwich and Worcester.....	"	54	2,121,110	701,600	2,596,488	267,561	116,965	4	56
Buffalo and New York City..	N. Y.	91	900,000	1,550,000	2,550,500	Recently	opened.	none	....
Buffalo, Corning and N. York.	"	132	.....	.....	In progres	.....	.....	none	65
Buffalo and State Line.....	"	69	879,636	872,000	1,921,270	Recently	opened.	....	130
Canandaigua and Niagara F..	"	50	.....	.....	In progres	.....	.....	....	....
Canandaigua and Elmira.....	"	47	425,509	582,400	987,627	76,760	39,360	none	....
Cayuga and Susquehanna....	"	35	687,000	400,000	1,070,786	74,241	23,496	none	....
Erie, (New York and Erie)...	"	464	10,000,000	24,003,865	33,070,863	4,318,962	1,800,181	7	69½
Hudson River.....	"	144	3,740,515	7,046,395	10,527,654	1,063,659	338,783	none	66
Harlem	"	130	4,725,250	977,463	6,102,935	681,445	324,494	4	50
Long Island.....	"	95	1,875,148	516,246	2,446,391	205,068	44,070	none	28
New York Central	"	504	23,085,600	10,773,823	33,859,423	.....	.....	....	104¾
Ogdensburgh (Northern).....	"	118	1,579,969	2,969,760	5,133,834	480,137	195,847	....	18½
Oswego and Syracuse.....	"	35	350,000	206,000	633,598	92,353	46,072	....	70
Plattsburg and Montreal....	"	23	174,042	131,000	349,775	Recently	opened.	none	....
Rensselaer and Saratoga....	"	25	610,000	25,000	774,495	213,078	96,737	....	....
Rutland and Washington.....	"	60	850,000	400,000	1,250,000	Recently	opened.	....	....
Saratoga and Washington....	"	41	899,800	940,000	1,832,945	173,545	135,017	none	30
Troy and Rutland.....	"	32	237,690	100,000	329,577	Recently	opened.	....	33
Troy and Boston.....	"	39	430,936	700,000	1,043,357	Recently	opened.	none	....
Watertown and Rome.....	"	96	1,011,940	650,000	1,693,711	225,152	116,706	8	92
Camden and Amboy.....	N. J.	65	1,500,000	.....	4,327,499	1,388,385	478,413	10	148
Morris and Essex.....	"	45	1,022,420	128,000	1,220,325	149,941	79,252	7	....
New Jersey.....	"	31	2,197,840	476,000	3,245,720	603,942	316,259	10	131
New Jersey Central.....	"	63	986,106	1,500,000	2,379,880	260,899	124,740	3	....
Cumberland Valley.....	Penn.	56	1,184,500	13,000	1,265,143	118,617	76,890	5	....
Erie and North East.....	"	20	600,000	.....	750,000	Recently	opened.	...	125
Harrisburgh and Lancaster...	"	36	830,100	713,227	1,702,523	265,327	106,320	8	55
Philadelphia and Reading....	"	95	6,656,332	10,427,800	17,141,987	2,480,626	1,251,987	7	79½
Philad., Wilmington and Balt.	"	98	5,000,000	2,399,166	8,067,285	868,038	541,769	5	74½

Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of $100.

NAME OF COMPANY.		Miles open.	Capital paid in.	Funded debt.	Tot. cost of road and equipm't.	Gross Earnings for last official year.	Net earnings for last official yr.	Dividend for do.	Price of shares.
Pennsylvania Central	Penn.	250	9,768,155	5,000,000	13,600,000	1,943,827	617,625	....	97
Philadelphia and Trenton	"	30	....	....	....	....	....	....	....
Pennsylvania Coal Co	"	47	....	....	....	....	....	....	102¼
Baltimore and Ohio	Md.	381	13,118,902	5,677,103	22,254,338	2,033,420	798,193	7	58
Washington branch	"	38	1,650,000	....	1,650,000	348,622	216,237	8	....
Baltimore and Susquehanna	"	57	....	....	....	413,673	152,536	....	..
Alexandria and Orange	Va.	65	....	....	In prog.	....	....	....	....
Manassas Gap	"	27	....	....	In prog.	....	....	....	....
Petersburgh	"	64	769,000	173,867	1,163,928	227,593	72,370	7	77
Richmond and Danville	"	73	1,372,324	200,000	In prog.	....	....	....	70
Richmond and Petersburgh	"	22	685,000	....	1,100,000	122,861	74,113	none	40
Rich., Fred. and Potomac	"	76	1,000,000	503,006	1,531,238	254,376	113,256	7	100
South Side	"	62	1,357,778	640,000	2,106,467	62,762	....	....	....
Virginia Central	"	107	1,673,684	469,150	2,392,215	210,052	99,077	10	50
Virginia and Tennessee	"	73	2,650,091	707,958	3,545,256	109,268	42,736	none	98
Winchester and Potomac	"	32	180,000	120,000	416,532	89,776	....	12	....
Wilmington and Raleigh	N .C.	161	1,338,878	1,134,698	2,965,574	510,038	153,898	6	....
Charlotte and South Carolina.	S. C.	110	....	....	....	....	....	....	....
Greenville and Columbia	"	140	1,004,231	500,000	In prog.	....	....	....	....
South Carolina	"	242	3,858,840	3,000,000	7,002,396	1,000,717	609,711	7	125
Wilmington and Manchester.	"	...	....	....	In prog.	....	....	....	....
Georgia Central	Ga.	191	3,500,000	418,187	3,465,879	986,074	535,608	8	116
Georgia	"	211	4,000,000	1,214	....	934,424	456,468	7½	....
Macon and Western	"	101	1,013,088	163,000	1,277,334	278,739	149,960	9	101
Muscogee	"	71	....	....	In prog.	59,590	21,731	....	....
South Western	"	50	586,887	150,000	743,525	129,395	71,535	8	....
Alabama and Tennessee River	Ala.	55	....	....	In prog.	....	....	....	....
Memphis and Charleston	"	93	776,259	400,000	In prog.	....	....	....	....
Mobile and Ohio	"	33	879,868	....	In prog.	....	....	....	....
Montgomery and West Point.	"	88	688,611	....	1,330,960	173,542	76,079	8	....
Southern	Miss.	60	....	....	....	....	....	....	....
East Tennessee and Georgia	Tenn.	80	835,000	541,000	In prog.	....	....	....	....
Nashville and Chattanooga	"	125	2,093,814	850,000	In prog.	....	....	....	....
Covington and Lexington	Ky.	38	1,430,150	900,000	In prog.	....	....	....	63
Frankfort and Lexington	"	29	357,218	....	584,902	87,421	44,250	....	80
Louisville and Frankfort	"	65	....	....	....	....	....	....	....
Maysville and Lexington	"	...	....	....	In prog.	....	....	....	45
Cleveland and Pittsburgh	Ohio.	100	1,979,100	1,142,200	3,279,908	432,682	267,278	10	76⅛
Cleveland and Toledo	"	147	2,000,000	1,600,000	....	....	....	..	92¼
Cleveland, and Erie	"	95	....	....	....	....	....	....	....
Cleveland and Columbus	"	135	3,027,000	408,200	3,655,000	777,793	483,454	12	116
Columbus, Piqua and Indiana.	"	46	....	....	2,000,000	....	....	....	65
Columbus and Lake Erie	"	61	....	....	....	....	....	....	....
Cincinnati., Ham. and Dayton	"	60	2,100,000	500,000	2,659,653	321,793	200,967	....	102¼
Cincinnati and Marietta	"	...	....	....	In prog.	....	....	....	62
Dayton and Western	"	40	310,000	550,000	925,000	Recently	opened.	....	75
Dayton and Michigan	"	20	....	....	In prog.	....	....	....	....
Eaton and Hamilton	"	36	....	....	....	....	....	....	56
Greenville and Miami	"	31	....	....	....	....	....	....	....
Hillsboro	"	37	....	....	In prog.	....	....	....	....
Little Miami	"	84	2,668,402	482,000	3,169,733	667,559	352,133	10	111
Mansfield and Sandusky	"	...	900,000	1,000,000	1,855,000	....	....	....	....
Mad River and Lake Erie	"	167	2,387,200	1,767,000	4,110,148	540,518	113,401	....	77¼
Ohio Central	"	57	....	....	In prog.	....	....	....	79
Ohio and Mississippi	"	...	....	....	"	....	....	....	....
Ohio and Pennsylvania	"	187	1,750,700	2,450,000	....	Recently	opened.	....	....
Ohio and Indiana	"	...	....	....	In prog.	....	....	....	....
Scioto and Hocking Valley	"	44	750,000	300,000	"	Recently	opened.	....	....
Columbus and Xenia	"	54	1,291,700	26,000	1,310,062	314,434	168,612	10	107
Evansville and Illinois	Ind.	31	....	....	In prog.	237,506	....	....	....
Indiana Central	"	...	....	....	"	....	....	....	77¼
Indiana Northern	"	131	....	....	"	....	....	....	....
Indianapolis and Bellefontaine	"	83	....	....	"	Recently	opened.	....	90
Indianopolis and Cincinnati	"	90	1,128,486	1,289,000	1,869,932	Recently	opened.	....	76
Lafayette and Indianapolis	"	62	....	....	....	....	opened.	....	....
Madison, Indianapolis & Peru	"	159	2,647,700	1,241,300	2,400,000	516,414	268,075	10	32
Terre Haute and Indianapolis	"	72	632,387	663,100	1,353,019	105,944	71,446	4	108
Rock Island and Chicago	Ill.	...	....	....	....	....	....	....	....
Chicago and Mississippi	"	135	2,400,000	4,000,000	4,600,000	....	....	....	....
Illinois Central	"	...	....	....	....	....	....	....	....
Galena and Chicago	"	92	....	500,000	In prog.	473,548	286,152	....	126
Michigan Southern and Ind. N.	Mich.	315	....	3,741,564	7,276,616	1,200,922	586,929	17	119½
Michigan Central	"	282	....	3,977,563	8,618,505	1,145,598	582,816	8	104¼
Pacific	Mo.	38	....	non	In progres	Recently	opened.	....	....

Northern Central Railroad of Maryland.

We last week gave a notice of the condition and prospects of the Susquehanna Railroad, but without speaking fully of the new organization into which it has been consolidated.

The Baltimore and Susquehanna, York and Cumberland, and the Susquehanna Railroads have been consolidated by the mutual enactment of the general assemblies of the Maryland and Pennsylvania, thereby forming a line of some 125 miles, opening to the great center of the coal region of Pennsylvania, directly to the tide water at Baltimore. A large part of this road, embracing that lying in the Susquehanna Valley, will have an extremely favorable gradient, while on the other parts the gradient is not generally difficult although an exceptional grade of 84 feet.

In Baltimore the Canton Company have tendered the consolidation 1200 feet of water front and free right of way of 100 feet width therewith.

The State of Maryland being the creditor of the Baltimore and Susquehanna Company for $2.000.000, had decided to relinquish one half of her claim upon the consummation of the consolidation, and the city of Baltimore had also relinquished her whole claim of $850,000 in the same event. The action of the Pennsylvania Assembly will now relieve the Baltimore and Susquehanna road, by these sums, and will enable them to use their credit towards the completion of the Susquehanna road, and the equipment of the entire line.

The Northern Central Railroad should exert a strong influence on the business and the trade of Baltimore. It will be her great coal road, with a capacity of full 2,000,000 tons per annum. It will secure to her advantages such as in another column we have indicated for New York in the event of the completion of a similar work for herself.

Clinton Line Railroad.

"We understand that on Saturday one of the contractors on the Clinton Railroad, east of Hudson, paid off and discharged the men in his employment, for the reason that the Co. had failed to make and pay the estimates necessary for the continuation of the work. At present it is almost impossible to procure money for the construction of new lines of road in Ohio, and we are informed that within a few days work will be suspended on several other roads in this vicinity."—*Cleveland Herald.*

Covington and Lexington Railroad.

This important road is about finished as far as Cynthiana, Ky. A meeting of the citizens has been held in that place to make arrangements for a barbecue, as soon as the work is done to that point; and we doubt not it will be of the right stamp, judging from our own experience of Kentucky barbecues.

The distance from Covington to Cynthiana is about 50 miles, and cars will commence running there at once. This road, although through a rugged country in part, is yet being constructed in the most workmanlike and permanent manner, and will be, when finished, a fine paying road.

Watertown and Rome Railroad.

The stockholders of the Watertown and Rome Railroad have voted to authorize its board of directors to indorse the bonds of the Potsdam and Watertown Railroad Co., under the recent act of the Legislature.

Coal Railroads to New York.

Next to a commercial intercourse with the west, our city requires a direct access to the great coal measures which nature has placed so conveniently within our reach. The article of coal, besides being one of our principal domestic necessities, is one of the essential elements of our commercial and industrial operations. If, with all our present trade, we could *export* coal, we should invite additional trade by offering another commodity for exchange, and by supplying the local wants of the coal producing district. This would be, besides the direct profit of the coal trade, which never promised better returns than now. But if, on the contrary, we import coal, through another seaport we not only avert trade and lose the direct profits of the business, but what is worse, we tax our social existence, and impose a burden, heavier than any excise, on our steam marine and on our manufactures.

The city of New York offers the greatest market for coal in this country. Its population is greatest. It employs a vast steam marine, inland and sea going. It has become a seat of great and varied manufactures. And all of these means of consumption are increasing. Nearly a million of beings are already inclosed within the suburban limits of New York. But the inhabitable capacity of our island is restricted by the price of fuel. This already amounts to a charge of $10 per annum, *per capital.* A mere lodger pays $2 a week now, for having a fire maintained in his apartment.

The cost of steamboat transportation is largely affected by the price of coal, and the benefits which our commerce could realize from the employment of steam are thereby, relatively diminished. Coal is the *principal* object of expense in running our steamboats. For an ocean steamer, taking 800 tons on a long voyage, the difference against our port as compared with another one having a *direct* supply of coal might amount to $12,000 yearly—a high *port duty* indeed, and which in any other form would drive our steam marine at once to other harbors.

Our manufactures of machinery, iron wares, sugar, printing materials, books, and numberless other articles, are large and rapidly increasing. Steam power is coming into extended use. It assists industry and cheapens production in nearly all of our business streets.

Here is the market. Let us examine :—

1,000,000 tons yearly for domestic use.
500,000 " " S. boats, tugs & ferries.
300,000 " " Ocean steamers,
200,000 " " Manufactures.

2,000,000 " " Present consumption.

Could we cheapen coal materially, we could, aided by other causes of growth, be prepared, in ten years, to double this demand.

Say 1,500,000 tons for domestic use.
1,000,000 " " S. boats, river & coastwise.
800,000 " " Ocean steam navigation.
700,000 " " Manufactures.

4,000,000 tons yearly by 1865.

Our present channels of supply are through Philadelphia and Baltimore, our Delaware and Hudson canal, carrying half a million tons yearly, and for the rest the Morris canal, and the coasters to Novia Scotia.

Now within 150 miles of our city we have inexhausitble supplies of coal, from which we should draw all that our operations require, for a cost of movement not exceeding $2,50 a ton. At $4 a ton at wholesale, the coal trade of New York would prove a paying, and at the same time the most *active* business of our port.

How soon shall we have a great coal road, able at least to supply the domestic wants of our city, even if we cannot engage in export; a great, double track, heavily equiped road, with coal wharves on the Jersey shore equal to the operations of a trade such as no other city in America could boast?

This is a matter urging itself upon the consideration of all having at heart the interest of New York. It is not merely a scheme for investment, although if consummated none would pay better, but it is to cheapen our household expenses, to protect our growing and invaluable steam marine and to employ and to reward the industry for which our city offers so wide a field, that we urge the necessity of such an avenue. Our city, and our state, we believe, would consume ten millions of tons yearly could it be had. And much of the state trade would be supplied if possible from New York city.

The Lackawanna road promises us half a million tons next year, and we hope New Yorkers will not rest until the "Water Gaps" nearer to us than to Philadelphia, can pas twice as much more for our use.

Express Locomotives.

A great principle in the philosophy of railroads has been left heretofore to develope itself, and in spite of the economy which it embraces, it has been accepted only so far and so fast as was necessary, to do the business which has been *forced* upon our roads. This principle is that of the "concentration of locomotive power." It is well known that the prices of wages and of materials used in operating railroads are from fifty to one hundred per cent. higher now than ten years ago. Yet, it is equally well known that the operating expenses of large roads, such as have supplied themselves year by year with the current improvements of the times, are less per ton or per passenger moved, now than *then*. Look at the cost of carrying coal on the Reading road for each of the last ten years. In 1843, the cost of carrying coal from Mount Carbon to Richmond was 46 cents per ton. Under present prices of wages, fuel and iron, this cost would be certainly 70 cents, and probably more. But the actual cost of carriage per ton has been reduced, by a gradual development of the principle we have so often advocated, until in 1853 it was but 35 cents, or but *one-half* what it would have been under the former system. The greatest means which have effected this result have been the doubling of the capacity of the engines; so that where two hundred tons was the average weight of coal carried in one train in 1843, 400 tons are now carried.

The following are the statistics of cost of carrying one ton of coal, for each year since 1843, as by the company's last report:

1843....	46.00 cents.	1849....	43.62 cents.
1844....	41.08 "	1850....	40.69 "
1845....	37.01 "	1851....	38.54 "
1846....	38.89 "	1852....	35.36 "
1847....	45.84 "	1853....	35.07 "
1848....	45.05 "		

Were the several costs adjusted upon the same prices as in 1843, the cost for 1853 would be about 23 cents per ton, or one-half of that in 1843.

The system, of which this is a result, has never been sought in advance, but has, to an extent, *forced* itself as a necessary economy upon the managements of railroads generally. It is difficult to define its ultimate limits. But there are obvious means of extending the power of locomotives to a greater extent than has been generally adopted.

We wish now to speak of express engines. The most obvious limit to the diameter of the boiler of a high-wheeled engine, is the distance across the track between the wheels. For a narrow gauge this is 53½ inches, and the boiler cannot well exceed 50 inches. The length of tubes may be, safely, 13 feet; and this united increase of length and diameter, over a boiler 43 inches in diameter and 11 feet long, would be equal to an increase of 60 per cent. of the capacity.

The only change in the structure of the engine which would ensue from this increase of diameter, would be a different mode of hanging the springs. These would either have to be placed under the edge of the firebox, on the crown of the firebox, or the boiler would have to be placed pretty high up, and the axles spread so as to have the springs clear the firebox. Norris adopts the first, Smith and Perkins the second, and Walter McQueen the third of these plans. We believe that if the forward spring be placed *under* the bearing, the back spring be placed *above* the frame, but wholly behind the firebox, and the equalizing lever be made to rest on a wide bearing on the bottom of the firebox, the result would be a strong, elastic and steady spring suspension, while greater room would be afforded for any desirable increase of the capacity of the diameter of the boiler.

We would be glad to see this mode of spring-hanging generally adopted, being well convinced that it would work as well as any other, and at the same time afford room for a diameter of boiler as great as is practically safe under high pressures. The equalizing lever should have a seat made to fasten upon the bottom of the furnace, and as wide as 6 inches, and both the beam and springs should be held from any lateral movement. Equalizing beams having a narrow bearing beneath the firebox have tilted over and broken the spokes of the driving wheels, a result easily guarded against by proper attention to the manner of securing the beam.

Tubes of 13 feet length should be of 2¼ inches diameter at least. This would make them stiffer in the boiler and give a better fastening in the tube sheets. But, better yet, it would increase the relative flue opening, giving a better draught, and it would relieve the "back pressure" felt in long tubes of small diameter, and also the tendency to fill and choke with ashes. We believe, too, that iron tubes, being far cheaper, stiffer, affording a more secure fastening to the tube sheets and not being subject to as rapid wear, and having *less expansion*, compared with copper or brass, will ultimately come into general favor.

Iron tubes are used entirely we believe, in all the long-boiler freight engines of the Baltimore and Ohio road, whether burning wood or bituminous coal. We know of Northern builders who have used iron in large lots, with the best success.

A set of copper tubes, proper for a first class express engine, would weigh 2½ tons and would cost $2000. It would cost much more to repair these tubes than if they were of iron, while their actual durability would be less.

By adopting a thin edge-frame between t e pedestal of drivers, and by placing the springs and equalizing beams clear of the firebox, room will be had for a grate of 44 inches width, an increase of from 4 to 8 inches over those now in general use on roads of the narrow guage.

With all these means improved, for increasing the capacity, of locomotives by about 60 per cent. within a weight of 33 tons, we are confident that the heavy passenger business of many of our roads could be worked cheaper than now. Our long distances and often heavy grades make the heaviest practicable class of engines desirable, if for nothing besides economy.

Lehigh Coal and Navigation Company.

From the late annual report of this Company found under the date of May 2, 1854, we present the following of their operations for the past year.

The water was let into the channel in March 1853, but in consequence of the repairs on the Delaware Division, business was retarded somewhat until the early part of May; and in consequence the production of coal fell below the estimated quantity.

The shipments for the year from the Company's mines, were 476,976 tons, which are with shipments from other mines, made a total of 1,080, 546 tons. The shipments of lumber were 51,896, 352 feet

Freight of every kind transported on the Company's canal during the year was 1,346,227 tons.

The profits of the year were an aggregate of $804.715.22, an increase of $1.715.76 over the year 1852.

The balance *for the year*, to the credit of profit and loss, after providing for State tax, interest, expenses and repairs, was $375.801.11; exhibiting an excess of $154 930.10 over the balance for the year 1852.

During the year the increase in the capital stock was $416.050; decrease in the funded debt, $495. 123; decrease in the floating debt, $32.884; decrease in the general indebtness of the Company, $435.856

The assets comprised, at the close of the year 1853, $500.148 of the Company's loans, held in trust as a contingent fund, subject to the orders of the Board of Managers; the increase in this fund, during the past year, being $120.556.

On the first day of January last the entire amount of the Company's liabilities, including the capital stock, loans and obligations of every kind and including also the loans held in trust, as above stated, was $7,276.732.

Since the close of the year 1853 the capital stock has been enlarged to $2.469,400; the amount at which it now stands.

The funded debt has been reduced to $4.420,470. The contingent fund stands as it did at the close of the year.

In May of last year a divident of 6 per cent was made in coal, and in future the Company hope to make the dividents payable in *cash*.

The expenditures during the year 1853 upon the Companies works have been quite moderate, and the *whole* outlay has as usual been charged to profit and loss.

The insufficient depth of water in the Delaware Division of the Pa. Canal continues to restrict the trade of the Lehigh region, and numerous appeal have been addressed to the Legislature for a remedy, but so far to no purpose.

Locomotive for Burning Anthracite Coal.

The engines made by Ross Winans, Esq., have for a long time been adapted to burning Anthracite coal, and are doing so with the utmost success, at the present time, upon the Reading Railroad. There are but few practical details, about locomotive boilers, which are essentially changed for burning this fuel; the principal being the *proportions* of the furnace, the admission of air, and the variable exhaust.

The following are the peculiar points in the furnaces and smoke stacks of the anthracite coal engines upon the Reading road; and such as an engine builder would require to know, to construct equally as good engines, for that kind of fuel, in other localities.

The furnace has a large grate with a shallow allowance of coal room. The Winans engines have grates 7 feet long and 3½ feet wide, giving 24½ square feet, while the average depth of furnace is but 3 feet. The sides and crown of the furnace are made wholly of the best double-heat hammered *iron*. The tube sheets and tubes are of iron; the tubes (103 in number) being 14 feet in length and 2¼ inches in diameter. The back end sheet of the outer firebox is flanged and riveted to the crown on the *outside*; that is to say, the end sheet is flanged outwards instead of inwards. By this plan the furnace can be quicker taken apart when it requires repairs.

The grate is made of very heavy cast iron bars, cast two together, and having a shank reaching out behind the firebox. Through a round hole in the end of this shank a lever can be applied to stir the bars and release the clinkers when the fire is burning. These bars are supported at both ends and at the center. For a grate 42 inches wide, there are six castings, or twelve separate grate bars. The spaces between the bars are about 1½ inches for lump coal. Winans has a patent for the movable grate bar.

The top of the firebox is a sloping flat surface inclining towards the tender. An opening is made in the top, about over the middle of the grade, and by a coal chest, with a sliding top and bottom, coal can be dumped directly upon the grate. The water space, over the inclined furnace crown, is about four inches thick, and the opening for the coal door is made through it.

Double cast iron doors, perforated for the admission of air, and having removable cast iron facings on the inside, are placed entirely across the hind end of the furnace at about six inches above the top of the grate bars. Between these doors and the grate, a cast iron frame, hinged like a door at one end, is placed. This frame is grated, up and down, so as to give 10 or 12 openings, 1½ by 4 inches, for still further increasing the admission of air upon the hind edge of the burning bed of coal. This frame, when swung open, just clears the top of the grate bars, there being no water space below the upper side of the door.

There is no footboard upon the engine, the engineman riding upon the top of the waist of the boiler, and the fireman riding on a platform projecting from the front end of the tender.

The ash pan is about 12 inches deep, opened only towards the tender, with the exception of openings of about 8 by 12 inches on each side for raking out cinders. The ash pan is kept flooded with two or three inches of water on the bottom, by which the life of the grate bars is increased. The ash pan has no damper. The water admitted to it is supplied through a one inch hose from the tender.

Going to the forward end of the boiler, the smoke box has vertical sides and a flat bottom; but curved pieces of boiler-plate are secured across the width of the smoke box, on the curve of the under side of the boiler, thereby leaving a round smoke chamber above, and a square chest below for holding the variable exhaust. Winans' patent variable exhaust is a cast iron box with expanding sides, worked by right and left worms, but Millholland's coal engines have simply a cast iron cylindrical nozzle with an internal cone capable of being elevated or depressed to vary the opening for exhaust. The mouth of the exhaust pipes is even with the bottom row of tubes, a pipe of 9 inches diameter, and having a flaring bottom, being placed over the blast, and reaching to the base of the chimney. The base being 14 or 15 inches in diameter, leaves three inches passage around the top of this pipe.

The spark arrester has an inside and an outside pipe, but no cone. The top of the outer pipe is made by a gridiron of bars of ¼ inch thickness, and placed ¼ inch apart. This grate is about 15 inches in diameter, and outside of this a sloping cap, forming a truncated cone, extends downwards at about 20 degrees from a horizontal line, until it attains an outer diameter of about three feet. The conical surface of this cap, which is over the casing of the inside chimney, is perforated with rectangular openings, ¾ by ¾ inch, in such a manner that the iron is cut through on but three sides of the opening, leaving the chip to ad' here by its upper longest edge, and to be bent straight down so as to let the smoke rise vertically. The sparks projected against the backs of these pieces are thrown into the casing around the chimney, from whence they are taken from the bottom. As many of these openings are cut through the cap as can be made without taking out too much of the strength of the iron, which latter has to be of the best quality. This form of sparker is that designed by Mr. Millholland for the Reading road, and differs some what from that of Mr. Winans.

A small pipe, with an inside stop-valve, extends from the fo ward dome into the chimney, so that a draught of steam may be had when standing.

It will be seen that no copper is used about the furnaces of these engines, nor in the tubes; that materiel being too expensive and being too easily cut away by the action of the coal. The fuel is coarse lump coal. The fire is started with pine wood.

An engine having a grate such as is described has a 48 inch boiler, with 103 tubes, 2¼ inches in diameter and 14 feet long; 19 inch cylinders, 22 inch stroke, and eight drivers 43 inches in diameter.

Many of the boilers burning anthracite upon the Reading Road are of the kind planned by Mr. James Millholland, the master of machiney of the road. His plan of boiler is the combination of

two old expedients; the internal smoke chamber and the flank grate. A smoke or gas chamber is placed within the boiler nearly midway of its length, and communicates with the furnace and smoke box by tubes on each side. The grate is also closed around the sides and front, to exclude air from passing up against the furnace sheets and to deaden the combustion of coal at those points. The *combination* of these two arrangements forms the subject of Mr. Millholland's patent, dated February, 17th 1852.

It has never been shown that this form of boiler has practical advantages superior to others in burning coal. It has some obvious disadvantages peculiar to itself. Besides having two setts of tubes and four tube sheets, it breaks up and injures the draught, by the pressure of the gas chamber. Instead of a free and direct passage to the front end of the boiler the draught is checked on entering the internal chamber, and has to take a fresh start through the forward set of tubes. We regard this as a very serious objection, even with large tubes. It impairs the efficiency of the furnace and imposes an additional load on the exhaust. Again as the internal chamber requires a water space of 2 or 2½ inches around it, the space available for tubes is diminished, making a 48 inch boiler no larger for the purpose of attaining tube surface, than one of the ordinary kind 43 inches in diameter.

One of Mr. Millholland's passenger engines with 15 inch cylinders, 30 inches stroke and seven feet drivers, having a large boiler of the patented kind, could not supply itself with steam, and the cylinders were accordingly "bushed" so as to be but 13 inches in diameter.

Journal of Railroad Law.

CUTTING OFF WHARVES.

Upon page 182 of the present volume, will be found a brief statement of a decision of our Supreme Court, in the case of *Tillotson* vs. *The Hudson River Railroad Company*. The plaintiff owned a farm opposite a bay, lying in defendants' route; and before their road was constructed, plaintiff had built a wharf, extending into the bay. The defendants carried their road across the bay, upon a structure of pile bridging, furnished with a draw suitable for the purposes of navigation, and distant about 1900 feet from and in front of plaintiff's dock. The Supreme Court held that defendants had not "cut off" the plaintiff's dock, within the meaning of their act of incorporation. We have now referred to the case above mentioned, only to say that the decision of the Supreme Court therein has recently been affirmed by our Court of Appeals.

CARRIERS' RECEIPTS.

The Court of Appeals, in the case of *Ellis* vs. *Willard*, has, according to Selden's notes, decided as follows:

Where goods are received by a carrier for transportation, and the bill of lading signed by the carrier expresses that the goods are received "in good order," to be "carried and delivered in like good order," he is not prevented by the bill of lading, as between him and the immediate parties to it, from showing by parol evidence that the goods were *not* in good order when received.

The statement in such instrument of the condition of the goods, is a mere *admission*, and not a part of the contract. It is *prima facie* evidence that the goods were conditioned as described; but it is not final and conclusive; it does not prevent the party signing the bill of lading from introducing evidence in contradiction of the bill of lading. Like an ordinary receipt, or the acknowledgment of the receipt and amount of the consideration in a deed, it is open to explanation by parol proof.

It is not material, in respect to a carrier's right of contradicting a bill of lading, as above stated, whether the goods were open to his inspection when the bill of lading was given by him or not.

A similar decision has been made in regard to bills of lading, by Judge Betts, of the United States Court, for the Southern District of New York.

ANNULLING CARRIER'S CONTRACTS.

A contract can only be annulled or modified by the unanimous consent of both parties. Our Court of Appeals have decided in the case above mentioned, of Ellis against Willard, that the owner of goods, having shipped them to be transported to a particular place, at a freight agreed upon, and demanded them of the carrier at an intermediate point, and received them in pursuance of such demand, cannot change the terms of the contract to the prejudice of the carrier, without his consent.

The carrier having demanded the full freight stipulated for transporting the goods to the required place of destination, the Court held that he was entitled to recover the same.

UNFORTUNATE STOCKJOBBING.

In the case of *Staples against Gould*, our Court of Appeals, as we learn from Selden's Notes, have firmly carried out the provisions of law touching stock-jobbing. On 15th January, 1851, on defendant's stating that he had sold for the plaintiff 200 shares of Canton stock, at $66 per share, deliverable at plaintiff's option in 30 days, plaintiff gave defendant $750, to meet any difference that might accrue against the plaintiff upon the interest, at the end of the 30 days. On 20th January defendant delivered the stock, at a loss of $4 per share, applying the $750 in part payment of the difference. The plaintiff had no knowledge of such delivery of the stock or payment of the difference at the time, and upon information of it did not approve of it. At the end of the thirty days the stock had fallen below $66 per share, and had fluctuated much within the 30 days. This action was brought to recover back the $750.

Held, that the defendant delivered the stock and paid the difference at his peril; and if there were no other grounds of defence, the plaintiff might recover.

But the whole transaction under the provision of the Revised Statutes, which declare that contracts for the sale of stocks shall be void, unless the seller *owns* the stocks. The transaction being illegal, no action being based upon it could be maintained by either party. It is true that by law a party who, in such a case, pays money by way of difference, may recover it back; but in this case, the $750 was not paid as a difference to the seller of the stock, but as a sort of deposit to the broker, by way of security.

JUMPING UPON CARS.

The *Zanesville Courier* of the 16th says: This morning Judge Stillwell decided that railroad companies were not liable for damages to persons who were hurt by getting off or on the cars while in motion. Suit was brought against the C. O. R. R. Co., by an individual who had his leg broken in an attempt to get upon the cars; and in accordance with this decision the plaintiff's claim was rejected.

IS FREIGHT DUE FOR GOODS NOT DELIVERED?

Mr. Hutchins, a banker of Louisville, in traveling lately upon the East Tennessee and Georgia Railroad, was, greatly to his surprise, required by the conductor to pay $40 as freight upon his two small valices, which he kept with him in the cars, but which, as the conductor ascertained, contained $40,000 in specie. The amount of freight was compromised finally at $17.

Common carriers of passengers, in taking *fare* from passengers, agree to transport them with *ordinary* baggage, including cash for travelling expenses. Nothing more. If they find that costly goods are taken under the semblance of luggage, why should they not demand freight for them? Why should they be compelled to carry Mr. Hutchins' gold without reward?

Plan of an Elevated Passenger Railroad for Broadway New York or any other City.

Drill holes in the pavement 5 feet from the houses, *about* 16 feet feet apart, the length you wish the road; round iron rods 1 inch in diameter, 12 feet long must be put in these holes and fastened with melted lead; on the top of these rods must be welded at right angles, iron bars ⅜ by ½ inch, 5 feet long, the ends secured to the houses, (or other posts). On the outside of this frame, fasten iron bars ⅜ by ½ inches, 18 inches apart the whole length. This forms the road, which should be built on both sides of the street, and the ends joined by a circular road, which makes it endless. The space 3½ feet between the houses and Railroad must be covered by a tight plank platform, or open work iron as the lower tenants choose.

The carriages should each hold but one person, like an arm chair; the wheels, 16 inches diameter would be hid; a top like a buggy, which the rider could raise, or lower as they choose; enough of these chairs must be made to fill the whole road, united together making an endless train, which should be always kept in motion, by stationary steam engines of small power every mile; the cars are so fixed that they cannot turn over nor get off the track; for passenger to get on and off the cars there must be stairs in each block, (or over each cross street) where strong active men must be stationed to assist ladies, children, and invalids, the speed would be 4 or 5 miles per hour, to be determined by experience; every time St. Pauls clock strikes, it might stop one minute, (if necessary).

Although 500 persons might be on this road at one time, the weight is so divided that no wheel, nor any one part of the road, will have a pressure of more than 100 lbs., it can therefore be built very cheap and light; each rider faces front and can see both sides of the street. It would form a beautiful riding promenade, for ladies in full dress, with bonnets on or off. For further information enquire of the same person that in the year 1821 built the first railroad (in Boston) that ever was built without cog wheels, when steam was to be motive power; and *proved* that the adhesion of the wheels by friction was enough,

without cogs, to prevent wheels from slipping on the rail; and without which proof, no railroad would have been built for travelling to this day. The useless and expensive addition of cogs were used in England until after my public exhibition in Boston.

May 20. 1854. CHARLES WILLIAMS,
Fallsburg Ga.

New York and Erie Railroad Freight Locomotives.

During the last season, the friends of the Erie road were encouraged with the prospect of having some 60 freight engines, of the largest class, placed upon the road, to enable it to accomodate the freight business of the present year. The purchase of engines was greatly delayed, however, to give the Company time to prepare plans and specifications in detail of what was wanted. In the meantime, the cost of engines advanced some $800 or $1,000. Now, the company have received about a dozen of the expected "sixty," and the deliveries are continuing at about three a month.

But the kind of engine adopted, and of which sixty are to cost some $750.000, and to require $400,000 a year for expense of fuel, repairs and attendance, is not what the friends of the road had a right to expect it should have, nor such as its business demands. The greatest performance of which we have yet heard, as made by any one of these engines, is that of hauling *sixteen* heavily loaded eight-wheel cars between Port Jervis and Piermont, and over grades of 60 feet. The weight of the train was 320 tons, the cars being loaded beyond their proper capacity. This is to be inferred as being the *ultimatum* of the Erie Railroad power.

As we have often, and at great length and precision, explained the advantages of moving maximum trains, and the important application of the doctrine of concentrated power in railroad economy, we feel impelled to a comparison of this performance with that of the engines of some of the Southern railroads.

The engines of the class of the Number 72, upon the Baltimore and Ohio Railroad, takes as an ordinary load, upon similar grades, 30 cars, weighing in all, 420 tons, and if worked to their *ultimate* power will take 40 cars, weighing 560 tons, of the same grade. One of these engines has taken 225 tons up a grade of 116 feet per mile. The *curves* of the Baltimore and Ohio road are frequent, and often of shorter radii than on the Erie road.

The freight engines of the Pennsylvania road take 375 tons as an ordinary, and 450 tons as an *ultimate* load, over 60 feet grades.

The new engines of the Erie road are well built, and of excellent stock, but are not *adapted* for the purpose intended.

Our technical friends will understand us when we say that in place of the 28 tons of adhesion of the Baltimore engines the Erie have but 21 tons, while instead of a 22 inch stroke and 3½ feet wheel, the former is 20 inches, and the latter 5 feet 2 inches.—In fact the Erie freight engines are better adapted for *speed* than power, and as a proof we may instance one of the number as now regularly running on the *night express* train from New York, and by which we have been drawn, in a heavy train, at a good 50 miles an hour on a level.

The value motion of the Erie engines, is the "shifting link" with short eccentric rods, the effect of which, changes the load from 1 16th to 7 16ths of an inch in changing the expansion from full to half stroke. Any mechanic will recognize from this an unfavorable condition for great power and moderate speed, especially for an engine working on 60 feet grades.

It is the use of engines not adapted to the business and grades of the Erie road, which imposes a great annual expense for transportation upon that work, and requires increased outlay for engine houses, turn tables, turnouts, and for fixed machinery; and which, more than the actual business of the road, has created the necessity for a double track. More accidents also result in running frequent trains.

We feel convinced that if the managers of some of our northern roads could realize the economy of eight-wheel combined engines having a moderate length of wheel-base and great power, and could they become aware of the manner in which the Reading, and Pennsylvania and the Baltimore and Ohio roads have turned the adaptation of such engines to profitable account—we should see our home roads in a position to carry freight at considerably lower rates.

The average *charge* for moving freight on the Western Railroad of Massachusetts was, for 1853, 2.8 cents per ton per mile. On the New York and Erie road 2.5 cents per ton per mile. On the Baltimore and Ohio road 1.8 cents per ton per mile. On the Reading road less than on the Balt. and Ohio .—The Pennslvania road, not having been opened, and having been subjected to state toll and to working inclined planes, during last year, has not established results useful for comparison.

Railroads in Arkansas.

The State of Arkansas bids fair to distance the State of Missouri in the Railroad race, although the latter had fairly started before the former had entered on the course.

The Missouri Pacific R. R. was commenced at St. Louis on the 4th of July, 1851. On the 10th of June, 1852, the Government of the United States granted lands for two Railroads in Missouri, the sum of the length of which was about 500 miles. During the following winter, the Railroad system of Missouri was determined: being 5 roads and about 1,200 miles; and on the 9th of December, 1852, the first locomotive west of Mississippi river, with its train of passenger cars, started from St. Louis and passed over the Pacific Railroad to near Cheltenham, about five miles.

Thus Missouri had fairly started on the Railroad course in 1852.

Then Arkansas was held bound by politicians on the dirt road track.

On the 9th of February, 1853, before the State of Arkansas had commenced any practical operations on any road, the Government of the United States granted lands for one Railroad and two branches in that State, the sum of the length of which was about 600 miles. During the past year, public Railroad meetings and Railroad conventions have been called throughout the State, at which speeches were made, information gained, etuhusiasm aroused, and resolutions carried, by which the Railroad system of Arkansas was determined; being 7 roads, and about 1,200 miles; and though the State was overwhelmed by debt, the gallant spirit of her people is giving and gaining means to secure and speed the prosperity of their Railroad system. The longest main trunk road in the State is the Cairo and Fulton. The next in importance are its two branches—the eastern branch being known by different names, according to the terminus contended for on the Mississippi, opposite Memphis, and at Helena, but which for convenience we will call the Mississippi and Little Rock R. R.; the western branch being known as the Little Rock and Fort Smith R. R.; which main trunk and branches extend about 600 miles, and are driven by planters and counties along their respective routes, aided by the grant of Congress above alluded to. The fourth road is called the Mississippi, Ouachita and Red River R. R., and sustains a similar relation to South Arkansas, that the Hannibal and St. Joseph R. R. does to North Missouri, running nearly due west. Camden and Fulton are main points on this road. The fifth and sixth roads are branches of the M., O. & R. R. road—the one running south through Union county to the Louisiana line, the other north to Little Rock, forming the links of the South Arkansas portion of the Great Mississippi Valley R. R. from the Gulf of Mexico *via* the Iron Mountain of Missouri to the Falls of St. Anthony. The seventh road is called the Border Railroad, and is projected to connect with the Missouri Southwestern Railroad, near Springfield, and with the New Orleans, Opelousas & Great Western Railroad of Louisiana, near Shreveport. These four last mentioned roads are together about the same length as the first three, viz: 600 miles; the whole system of Railroads in Arkansas including as above stated about 1,200 miles. The first 600 miles are provided with grants of land by Congress. The last 600 miles is in a fair way of being provided for by similar grants; which, when done, will furnish Arkansas with grants of land for 700 miles of Railroads more than Missouri has been, or, from present appearances, is likely to be furnished with, although Arkansas has already received grants of more land from Congress than Missouri has, and although the State of Missouri contains over 8,000,000 acres more than the State of Arkansas, and although the Government of the United States still holds nearly 7,000,000 acres more in Missouri than in Arkansas.—*Western Journal.*

Railroads of Missouri.

The Railroads under construction and projected in Missouri are as follows:

1.	Pacific to Kansas, distance say	300 miles.
2.	St Louis and Iron mountain	80 "
3.	St. Louis and South Western	300 "
4.	North Missouri	250 "
5.	Hannibal and St. Joseph	200 "
6.	Weston and St. Louis	200 "
	In all,	1330 miles.

Estimating hem to cost $25,000 a mile, would require the sum of $33,750,000.

Evansville, Indianapolis and Cleveland S. L. R. R.

Oliver H. Smith, Willard Carpenter, Franklin Hardin, James W. Cockrum, John Love, Jeremiah Smith, Henry D. Allis, Alexander Leslie, James Crosby, John H. Johnson, and William Mason, have been eleeted Directors of the above Railroad Company. Oliver H. Smith was unanimously elected President; Willard Carpenter, Vice President; James Greene, Secretary and Treasurer, and Henry C. Moore Chief Engineer.

Old Railroad Iron For Sale.

ABOUT 250 TONS, mostly whole bars, flat iron of superior quality. Deliverable at Portsmouth Va. as fast as it can be hauled. Immediate offers are invited, addressed to

L. O. B. BRANCH, President R. & G. R. R.
Releigh N. Carolina,

None but the accepted offer will be applied to.
3t.22

SURVEYORS & ENGINEERS.

ALBERT COOK & CO.

19 John Street,

NEW YORK.

HAVE, in connection with their Optical and Mathematical importations, established a Manufactory of Surveying Instruments. Employing an experienced Engineer, and the best of German mechanics, their instruments will give full satisfaction.

James W. Hooker,
COMMISSION MERCHANT,

AGRICULTURAL WAREHOUSE,
AND MACHINERY DEPOT,
No. 86 Lloyd Street, Buffalo, N. Y.

Commission dealer in Portable and Stationary Engines, Iron Planers, Lathes, Universal Chucks, Belting, Oils, Rubber Packing and Hose Scales, Safes, Mill Stones, and Machinery generally. Post paid letters will receive prompt attention. 22tf

STEEL.

Shortridge, Howell & Jessop,
HARTFORD STEEL WORKS,
SHEFFIELD, ENGLAND,

HAVE contantly on hand at 24 Cliff St., New York—

CAST STEEL—double Refined and Extra, Square, Flat and do. Best Warranted do. do. [Octagon.
SHEAR STEEL—Best double and single, *Warranted.*
MACHINERY STEEL—Round assorted.
SHEET STEEL—for Saws and other purposes, 1st and 2d
GERMAN STEEL—assorted sizes. [quality.
SPRING STEEL—for Railway and Carriage purposes, 1st [and 2d quality.
BLISTER STEEL—Genuine (L), "Sykes", and other good
BLADE STEEL—for Cutlery purposes. [stamps.

All of which are *guaranteed* to be equal to any other make, and offered for sale on the most favorable terms, by

1y22 DUNCAN LITTLEJOHN, *Agent.*

Sewall & Crehore

CIVIL ENGINEERS,
ST. PAUL, MINESOTA.

JOSEPH S. SEWALL. CHAS. FRED. CREHORE.

Lyon's Tables of Cubic Contents, Etc.

These valuable tables are of great assistance in obtaining the cubic contents of excavations and embankments. Table 1. gives correct mean heights of cross sections with either two or three cuttings taken. Table 2. finds the cubic contents, having the mean heights at each end of the section to be calculated given. These tables possess advantages in being applicable to every variety of bases and side slopes. Engineers and others may obtain them by application at the American Railroad Journal office, 9 Spruce Street, New York, by mail or otherwise.—Price $1.50. 21.tf

Railroad Iron.

500 TONS, best English make, 57 lbs. per lineal yard, now in port. For Sale by,

THEODORE DEHON. 26½ Broadway.

Contracts made as above for Rails delivered at any English or American port at lowest rates and customary credits. 21.5t

Notice to Contractors.

PROPOSALS will be received at the office of the North Western Railroad Co., in Butler, Butler Co., Pennsylvania, until the 7th of June, 1854, inclusive, for the grading and masonry of that portion of the North Western Railroad, extending from Blairsville to Freeport, a distance of 35 miles, comprising some heavy excavations, bridging and two tunnels varying from 1000 to 1400 feet each. Plans profiles and specifications will be ready for examination on and after the 29th inst., at the Engineer's Office, in Blairsville,—Indiana County, and Butler.

This line offers superior advantages to Contractors, the country being healthy and easy of access, and provisions very cheap.

At the same time and place, some of the heavy sections between Freeport and Butler and west of Butler will be offered for letting.

MALONE, PAINTER, CLARK & GONDER.

2t.21

D. Mitchell, Jr.,

Chief Engineer Pittsburgh and Steubenville, and Chartiers Valley Railroads, Pittsburg, Pa.

Samuel Mc Elroy,

Assistant Engineer, New York Navy Yard.

Charles B. Stuart,

Civil Engineer, New York.

Edward W. Serrell,

Civil Engineer, 157 Broadway, New York.

ENGINEERS' AND SURVEYORS'
INSTRUMENTS, MADE BY
Edmund Draper,
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STANCLIFFE & DRAPER,

No. 22 Pear Street, near Third St., below Walnut, PHILADELPHIA.

MONTREAL & NEW YORK
AND
Plattsburgh and Montreal RAILROADS.

☞ *Open through from Plattsburgh to Montreal.* ☜

Passenger Trains leave Montreal for Plattsburg at 6 30 a.m and 5 p.m., arrive at 8 a.m, and 7.30 p.m.

Leave Plattsburg for Montreal 7.30 a.m. and 4 p.m., arrive a 10 a.m. and 6.50 p.m.

Trains connet at Montreal with Steamers for Quebec, and the St. Lawrence and Atlantic Railroad for Sherbrooke and inter mediate station.

Trains connect at Mooers Junction with Northern (Ogdensburgh) Railroad for Ogdensburgh and Lake Ontario Steamers for Lewiston, Niagara Falls and Upper Canadia, and all ports on the Western Lakes.

Trains connect at Plattsburgh by Steamer to Burlington with Rutland and Burlington Railroad and connecting lines for Troy, Albany, New York and Boston, and all intermediate stations. Also with steamers for Whitehall to the Saratoga and Washington Railroad, and connecting lines of road to Troy, Albany and New York.

Passengers will find this route uneaquelled for comfor and dispatch, and attended with leasf atigue and dely than any other. It possesses moreover the advantage of a short Ferriage of only *fifteen minutes* across the River St. Lawrence at Caughnawaga, which has never been known to freeze, and can be confidently relied upon at all seasons of the year.

☞ Frieght Tarins run daily each way.

For particulars see Frieght and Passenger Tariff.

BAGGAGE *checked through.*

H. W. NELSON, Superintendent.

Railroad Iron.

THE "Montour Iron Company" is prepared to execute orders for Rails of the usual patterns and weights, and of any required length not exceeding 30 feet per rail.

Apply to THOS. CHAMBERS,
September, 1850. President.

Notice to Bridge Builders.

Proposals will be received until Monday June 3 at the Engineers Office, Huntingdon Pa. for the superstructure of Bridges on Trestle Works, of the Huntingdon and Broad Top Railroad.—Plans and specifications will be exibited at the office, or Contractors may present their own plans with their bids.

S. W. MIFFLIN C. Engineer
Huntingdon May 6 1854, 4t

To Contractors.

PHILADELPHIA, WILMINGTON AND BALTIMORE RAILROAD OFFICE.—PHILADELPHIA, April 21st, 1854.—PROPOSALS will be received at this office until May 25th, 1854, for driving the piles, protecting the foundations, and for the Masonry above and under water, of the proposed Bridge across the Susquehanna River at Havre-de-Grace, Maryland.

Also, for the Grading and Masonry of the new location of the Road adjoining the Bridge, and of the Port Deposit Branch Railroad.

Plans, profiles ond specifications may be seen at the Engineer's Office, in Havre-de-Grace.

S. M. FELTON,
17,4t Pres. P. W. and B. R. R.

Notice to Contractors.

OFFICE OF THE VICKSBURG, SHREVEPORT AND TEXAS RAILROAD COMPANY,
Monroe La., March 8th, 1854.

SEALED PROPOSALS will be received at this office until the 1st day of June next, at 2 o'clock P. M., for clearing and grading the section of road between the Mississippi river and Richmond, in the parish of Madison—a distance of about twenty miles; also, for clearing and grading the section between the city of Shreveport and the Texas State line, in the parish of Caddo—a distance of about twenty miles; and, also, for clearing and grading a section of twenty miles, beginning at the Ouachita river and running west, in the parish of Ouachita.

Bids may be made for the sections, or any portion thereof, not less than one mile, and those proposing to take stock of the company in part payment, will be most favorably considered, The lines, plans, profiles and quantities of work, together with the specifications, are now ready for examination in the office of the company. Payments in the proportion of four-fifths of the amounts due will be made at the end of each month or quarter, as may be agreed on, during the progress of the work.

The company reserves the right to accept such proposals as in their judgment will secure the prompt and faithful execution of the work according to contract, or to reject all if none are satisfactory.

Further information may be obtained from the undersigned.

N. D. COLEMAN.
President.
P. J. TOURNADRE,
Chief Engineer.

Railroad Companies and Contractors,

WANTING first rate German or Irish laborers for railroads and canal work, or mechanics of any kind, will find the undersigned a first rate office to give their orders to, as thousands of emigrants apply to them every season for employment.

Satisfactory reference will be given to well known companies and contractors, and men are forwarded to any part of the Union.

MORRIS & COHNERT,
European, American Employment Office,
287 Broadway, corner Reade-st.
3m*10 Under the Irving House, New York.

N. York and N. Haven R. R.

NOTICE OF SUMMER ARRANGEMENTS,

Commencing Monday, May 9, 1854.

TRAINS FROM NEW YORK.	TRAINS TO NEW YORK.
7 A. M.—Accommodation to New Haven.	5.30 A.M.—Special, from Port Chester.
8 A. M.—Express for Boston, stopping at Stamford and Bridgeport.	5.00 A.M.—Commutation from New Haven.
	6.15 A.M.—Accommodation fm New Haven.
9.10 A.M.—Special for Port Chester.	8.15 A.M.—Accommodation fm New Haven.
11.30 A.M.—Accommodation for New Haven.	9.35 A.M.—Express from New Haven, Stopping at Bridgeport, Norwalk and Stamford.
3·00 P.M.—Express for New Haven, stopping at Stamford, Norwalk and Bridgeport.	1·07 P.M.—Boston Express, stopping at Bridgeport, Norwalk and Stamford.
4.00 P.M.—Accommodation for New Haven.	
5.00 P.M.—Express for Boston, stopping at N. Haven.	4.00 P.M.—Special, from Port Chester.
	4.00 P.M.—Accommodation fm New Haven.
5.35 P.M.—Commutation for N. Haven.	9.30 P.M.—Boston Express, stopping at Bridgeport, Norwalk and Stamford.
6.30 P.M.—Special for Port Chester.	

GEORGE W. WHISTLER, Jr., Sup't.
New Haven, May, 1854.

Edge Tools.

THE Underhill Edge Tool Company manufacture from the best of Steel, and Warrant every variety of Edge Tools for the New England, Southern and Western trade, including Axes, Adzes, Picks and Chisels; all of which are constantly kept on hand at their Warehouse, 53 Kilby street, Boston.

December 18, 1852. WM. S. SAMPSON, Agent.

New York and Erie R. R.

PASSENGER TRAINS leave Pier foot of Duane street, as follows, viz:—

BUFFALO EXPRESS, at 6 a. m. for Buffalo direct, without change of baggage or cars.

Dunkirk Express, at 7. a. m. for Dunkirk.

MAIL, at 8¼ a. m. for Dunkirk and Buffalo, and intermediate stations.

WAY EXPRESS, at 12¼ p. m. for Dunkirk.

Rockland Passengers, at 3. 30 p. m., (from foot of Chamers Street) via Piermont, for Suffern and intermediate stations.

WAY PASSENGER, at 4 p. m., for Otisville, and intermediate stations.

NIGHT EXPRESS, at 6 p. m. for Dunkirk and Buffalo.

Emigrant at 6 p. m.

On Sundays only one Express Train—at 6 p.m.

These Express Trains connect at Buffalo with first-class splendid Steamers on Lake Erie for all ports on the Lake; and at Dunkirk with the Lake Shore Railroad for Cleveland, Cincinnati, Toledo, Detroit, Chicago, etc.

D. C. McCALLUM, General Sup't.

Great Western Mail Route.

SIXTY MILES DISTANCE SAVED TO CHICAGO AND ST. LOUIS. THE MICHIGAN SOUTHERN AND NORTHERN INDIANA RAILROAD LINE, carrying the Great Western United States Through Mail, have the following staunch first-class Steamers running on Lake Erie in connection with the NEW YORK AND ERIE RAILROAD from Dunkirk, touching at Cleveland, and connecting with their Road at Toledo, and connecting directly with the CHICAGO AND ROCK ISLAND RAILROADS at Chicago, in the same Depot, thus forming a Daily Line for Passengers and Freight from New York to the Mississippi River. NIAGARA, Capt. Miller; EMPIRE, Capt. Mitchell; KEYSTONE STATE, Capt. Richards; LOUISIANA, Capt. Davenport. Also

A DAILY LINE FROM BUFFALO DIRECT TO MONROE, by those well-known magnificent Floating Palaces, EMPIRE STATE. J. WILSON, Commander, leaves Buffalo Mondays and Thursdays; SOUTHERN MICHIGAN, A. D. PERKINS, Commander, leaves Buffalo Tuesdays and Fridays; NORTHERN INDIANA, I. T. PHEATT, Commander, leaves Buffalo Wednesdays and Saturdays.

One of the above splendid Steamers will leave the Michigan Southern Railroad Line Dock, at 9 o'clock, P. M. every day, (except Sundays) and run direct through to Monroe without landing, in 14 hours, where the LIGHTNING EXPRESS TRAIN will be in waiting to take passengers direct to Chicago in 8 hours, arriving next evening after leaving Buffalo.

Running time from New York to Buffalo.....14 hours.
Running time from Buffalo to Monroe.....14 hours.
Running time from Monroe to Chicago..... 8 hours.

Total.....36 hours.

Connecting at Chicago with a fine line of Low Pressure Steamboats to all places north of Chicago to Green Bay; also with Chicago and Rock Island Railroad to La Salle, and there connect with Illinois River Line of Steamboats, or Express Trains of ILLINOIS CENTRAL AND CHICAGO AND MISSISSIPPI RAILROADS, or connecting at Rock Island with regular line of steamers for all points above and below, making the cheapest and most direct Route to St. Louis, Rock Island, Minnesota, and the Great West.

The AMERICAN LAKE SHORE RAILROADS from Buffalo and Dunkirk connect with this line at Toledo, forming the only direct and continuous line of Railroads from the Atlantic Seaboard to the Valley of the Mississippi.

Running time to Chicago, 36 hours; to St. Louis, 56 hours.

FOUR DAILY TRAINS by Railroad all the way.
TWO DAILY LINES by Steamers on Lake Erie.

Thus the Traveller and Shipper can see at a glance that no other Line can enter the lists as competitors.

Passengers Ticketed Through from New York with privilege of stopping over at any point on the route, and resuming seats at leisure, either by the New York and Erie Railroad, via Dunkirk, New York and Erie and Buffalo and New York City Railroad via Buffalo; People's Line of Steamboats, Hudson River or Harlem and New York Central Railroads, via Albany and Buffalo.

For any further information, Through Tickets, or Freight, apply at the Company's Office, No. 193 Broadway, corner of Dey st., N. Y., to JOHN F. PORTER, General Agent, or L. P. DUNTON, Ticket Agent.

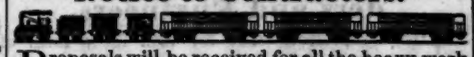
Notice to Contractors.

PROPOSALS FOR THE ENTIRE CONstruction and equipment, or the graduation, bridging and masonry, separately, either in whole or in part, of the Mississippi and Tennessee Railroad, (extending from Memphis to Grenada, Mississippi, about 97 miles,) will be received at the office of the Company, in Memphis, till the 20th of July next. Proposals for the entire construction and equipment, and otherwise as favorable, will have preference. Profiles and estimates of the first 60 miles may be seen on application at the Engineer's Office in Memphis. Bidders must furnish satisfactory evidence of their ability to complete the work.

MINOR MERIWETHER,
Chief Engineer.

May 4th, 1854.

Notice to Contractors.



Proposals will be received for all the heavy work on the Blue Ridge Rail Road, South Carolina; Blue Ridge Rail Road, Georgia: Tennessee River Rail Road, North Carolina; Knoxville and Charleston Rail Road Tennessee. The above lines of rail-way are consolidated and under the management of one Company, Extending from Anderson South Carolina, via Clayton, Georgia, Franklin North Carolina, to Knoxville Tennessee, a distance of 194 miles. That part of the road from Anderson South Carolina, to the Turniptop Mountain, a distance of 40 miles is principally earth excavation, of about equal quantities of cut and fill, with several bridges. From the Turniptop Mountain to the Rabun Gap, a distance of 24 miles, the work is very heavy, there being on the line one tunnel of 5800 feet, one of 1400 feet, and one of 400 feet in length; a suspension bridge across the Chatnga River 500 feet long, with some very heavy earth and rock cuts. The rock in the Tunnels is gneiss stratified. From the Rabun Gap to twenty miles below Franklin, a distance of 50 miles, the line follows down the Tennessee River; the class of work is principally side hill evcavation, some of which is rock; their will also be several bridges. From the point 20 miles below Franklin to Hardens, a distance of 35 miles, the line follows the Tennessee River the entire distance, causing heavy side rock excavations. On this portion of the line will be several expensive bridges, and a tunnel of about 1000 feet. From Hardens to Knoxville, a distance of 45 miles, the line follows the river about eight miles, then leaves it, running across the Chilhona mountains almost a north line to Knoxville; this portion of the road is heavy work, with about equal quantities of cut and fill, an expensive bridge 1000 feet long and 45 feet high, crossing the Holston River at Knoxville. The character of the rock from Knoxville to Hardens is limestone, and from Hardens to Franklin gneiss rock stratified, and from Franklin to Anderson, stratified sandstone and gneiss rock. The character of the earth is sandy and clay loam. The line for the whole distance runs through high table lands, well settled, remarkable for its health, good water and ample resources for subsistence. The above line of railway offers great inducements to experienced contractors. The undersigned will be prepared to receive proposals and enter into contracts for the graduation, bridging, tunneling and masonry for the heavy portion of the line, from and after the 1st day of May next, at Knoxville Tennessee, Franklin North Carolina, and Pendleton South Carolina, and will continue at such places, until the same is under contract. Profiles and maps of approximate location can be seen at each of the above places after the 1st day of May. Proposals are asked with cash payments, also eighty per cent cash and twenty per cent in the Capital Stocks or Bonds of the Company. All communications prior to may 1st must be addressed at Pendleton South Carolina.

4,13 ANSON BANGS & Co.

To Contractors.

The Virginia Central Railroad Co. proposes to contract for taking up about 36 rails of superstructure now laid with the strap rail, and relaying with a heavy rail, the contractor furnishing every thing except the ties which will be distributed by the company.

Sealed proposals will be received at the office of the company in Richmond, until the 24th day of May next, at 9 o'clock.

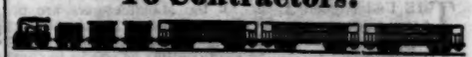
The Rail to be used must weigh from 55 to 60 lbs. to the yard. Payments to be 50 per cent. cash, and 50 per cent. in the Bonds of the company running 30 years, and secured by a mortgage on the whole property of the company.

Specifications may be obtained at the Engineer's office at Richmond, after the 10th day of May.

CHARLES ELLET, Jr.
Chief Engineer.

April 26th 1854. 3t.18

To Contractors.



PACIFIC RAILROAD OF MISSOURI

THIRD AND FOURTH DIVISIONS.

IT is intended to make contract for the third divisions of this road, (extending from the Missouri river at Jefferson City, passing near Georgetown and Warrensburgh, to the Missouri river near Independence, about 160 miles,) so soon after the first of May next, as satisfactory proposals shall be made.

Contract will be made for the whole now offered, or such parts as particular contractors may select in form and quantity to suit the interests of the company. Proposals are asked for by the cubic yard, with cash payments; but contractors may, if they desire, accompany their offer with proposals for two thirds cash and one third in county and railroad mortgage bonds or other securities.

Profiles and maps of approximate location can be seen after first of April next at Pacific Railroad Office, in St. Louis, and any information will be given on application to the Engineer.

The first division of this road is now in operation; the second division to Jefferson City under present course of construction.

The third and fourth divisions now offered pass over a high, rolling mixed prairie and timbered country, and for healthfulness and supply of provisions will compare favorably with any part o the west. THOS. ALLEN, Pres.

THOS. S. O'SULLIVAN, Chief Eng.

Pacific R.R. Office, St. Louis, Feb. 1854.

To Chief Engineers.

A Gentleman who has had some Eight years Experience in construction of various Eastern and Western Railroads desires a situation as Resident Engineer upon some railway in the United States. The best of references as to Capability and Efficiency can be furnished. Address B. care of John Palmer Esq. East Cambridge, Mass. 17 tf

For Sale.

THE ROSSIE FURNACE AND FOUNDRY, etc., St. Lawrence County, N. Y.—This well known establishment, having attached to it a large and complete Casting House and Machine Shop, with ample accommodations for workmen, and every convenience necessary to the the prosecution of an extensive business, together with valuable Iron Mines and Mining Rights, also Timber Lands, is offered for sale by the proprietor, who retires from the business. The capacity of the Rossie Furnace for making iron, is believed to be unsurpassed by any charcoal Furnace in the country, having repeatedly run up to fourteen tons per day, with 55 to 60 per cent. yield from ores—specular red oxides—coal, per ton, 100 bushels. The same has been in uninterrupted operation for over twenty years, and the reputation of its iron is established throughout the West. The location of these works is in the village and town of Rossie, county of St. Lawrence, N. Y., six miles from the River St. Lawrence, and connected therewith by a plank road. Their cost, apart from premises and water power, has involved an expenditure of over $100,000, and their present efficiency, in every respect, is considered unexceptionable. For further information apply to D. W. Baldwin, Agent, at the works, or to the undersigned.

G. PARISH.

Ogdensburgh, N. Y., April, 1853. 15,3m*

SEYMOUR MORTON & CO. GENERAL R. R. AGENCY, Office, Metropolitan Bank Building. No 110 Broadway, have to dispose of at private sale, in amounts to suit persons desiring to invest, the following valuable Securities:

LOUISVILLE CITY BONDS, at 30 years

OHIO AND MISSISSIPPI R.R. STOCK, drawing interest.

MAYSVILLE AND LEXINGTON MORTGAGE BONDS, at 24 years.

MAYSVILLE AND LEXINGTON R. R STOCK.

SCIOTO AND HOCKING VALLEY R.R. STOCK.

SCIOTO AND HOCKING VALLEY R.R. FIRST MORTGAGE CONVERTIBLE BONDS.

LOUISVILLE AND NASHVILLE R.R. STOCK.

BUFFALO AND STATE LINE R.R. BONDS.

They are prepared to negotiate contracts for the construction and equipment of Railroads in any part of the country, including furnishing corps of engineers and contractors locomotive engines and cars, railroad bridges. McCallum's patent, railroad iron, chairs, spikes, switch irons, &c., &c.

Railroad Iron.

THE Undersigned, Agents for the Manufacturers, are prepared to contract to deliver free on board at shipping ports in England, or at ports of discharge in the United States, Rails of superior quality, and of weight or pattern as may be required.

VOSE, PERKINS & CO,
New York, June 1, 1851. 9 South William Street.

Important to Railway Co's.

A GREAT improvement has recently been perfected in the manufacture of Dumping Gravel Cars by which the cost is materially lessened and the strength and durability much increased.

We have secured the right to manufacture these improved Cars and can supply them at prices ten per cent. lower than the ordinary kind.

Orders directed to the Hamilton Car Co., Hamilton, Ohio, will receive prompt attention.

South-Western Car Shops, Madison, Indiana.

THE subscriber is prepared to execute orders at short notice, for all kinds of Passenger, Freight and other descriptions of Railroad Cars.

Work delivered at any point accessible by railroad, or by the Ohio and Mississippi rivers.

Facilities for transportation, enable the subscriber to afford peculiar advantages to Companies requiring work delivered in the South and West.

W. CLOUGH.

Refer to

JNO. BROUGH, Esq. WINSLOW, LANIER & Co.

feb.18. 1m.

Ontario, Simcoe & Huron R.R. CANADA.

THIS road opened in May last to Lake Simcoe is expected to be completed to the Georgian Bay, Lake Huron a distance of 96 miles in June next where it will form the shortest and most agreeable route to the North Western States to Lake Michigan and to the Mineral Regions of Lake Superior.

At present the Passenger Trains leave Toronto for Barrie (64 miles) daily at 8 a.m. and 3. 30 p.m., returning the same day—On the opening of the navigation a Steamer will ply on Lake Simcoe in connexion with the Trains and will convey passengers through that Lake and Lake Conchiching to Orilla whence a short portage of eighteen miles will take them to the waters of Lake Huron to the Steamer (Kaloolah) which runs to the Sault St. Marie and intermediate ports forming the most expeditious and agreeable route to the Mineral Regions of Lakes Huron and Superior.

Arrangements will be made on the completion of the road to the Georgian Bay for a line of first class Steamers to extend their trips to the ports on Lake Michigan.

ALFRED BRUNEL,
Superintendent.

MR. WILLIAM NAISH, of Newport, Monmouthshire Inspecter of rails, begs most respectfully to acquaint importers of rails, engineers and others connected with the railroads of America, that he stills continues to execute orders of inspection, throughout the various districts of South Wales and adjacent Iron works, and confidently refers to the satisfaction which his supervision has given during the last ten year to exporters of rails, and others below named; as a proof of the fidelity, carefulness and promptitude of his inspections.

BARING BRO. & CO., London.
PALMER, McKILLOP, DENT & CO., London.
LEWIS HOPE, Esq., "
COLLMAN & STOHLTERFOHT. "
HON. JAS. WADSWORTH, Buffalo New York.
JAMES SPENCE, Esq., Liverpool. "
NAYLOR, VICKERS & CO. " " 19ly

C. Floyd-Jones.,

Division Engineer 3d and 12th Divisions.
ILLINOIS CENTRAL RAILROAD.
Vandalia, Ill.

Locomotive Engines for Sale.

TWO first class engines, adapted to a 5 foot, gauge, 22 tons weight, 16 + 20 inch Cylinders, and 5½ and 6 feet drivers, built by one of the best makers in the country. New, and offered for sale because not required by those ordering them. Enquire at the office of American Railroad Journal, 9 Spruce-st., up stairs.

Dec. 24

Passenger Cars for Sale.

TWO first class Passenger Cars, built by one of the best car builders in the country, for the Baltimore and Ohio Railroad.

The above presents a rare opportunity to any Railroad Company wishing first class cars for immediate use.

They will be sold at a bargain for cash or good paper. Enquire at the office of Bridges & Brothers, 64 Courtland Street.

New York, Feb. 21st, 1854.

To Locomotive Engine Builders and Engineers.

THE Proprietors offer for rent for a term of years, with immediate possession, the splendid property, known as the BELLEVILLE IRON WORKS, situated on the Mississippi, directly opposite the City of New Orleans, and within 300 feet of the River, with which it is connected by fine wharves and landings.

The buildings are of brick, with slated roofs, and were erected in 1848 at a very heavy expense; are of a most substantial and durable character and admirably fitted for a Foundry and Machine Shops, or almost any mechanical business. They now contain a new and powerful Engine and Boiler and sufficient machinery, say, planing machines—lathes—boring machines, blacksmith's tools, &c., &c., to employ 100 mechanics, and could be put in working order in a few days. The Buildings cover a lot 300 feet square and are amply large to receive the necessary machinery for the use of 800 to 1000 workmen.

The terminus and depot of the New Orleans, Opelousas and Great Western Railroad is situated abont 300 yards from the above property, which could be availed of to great advantage for the manufacture of Locomotives and Railroad work, generally as well as Steam Engines, Sugar Mills, and other descriptions of Machinery.

There are no Shops in New Orleans for the manufacture of Railroad Machinery, and as the Railroad Companies now organized in that city contemplate the construction of over 1000 miles of road,—a large part of which is already under contract,—the property now offered for lease offers a most eligible opportunity for parties desiring to contract to furnish the Engines and Machinery,—for those roads. Responsible contractors with their works on the spot would have an advantage over Northern Workshops in contracting for the Work of the Railroads terminating in New Orleans.

The Establishment and prospect of remunerating work to be secured immediately are worthy the attention of manufacturers and Engineers generally.

Applications from responsible parties will be promptly attended to, and to satisfactory parties the proprietors of the Works can offer favorable terms and arrangements.

Letters may be addressed to

R. B. SUMNER,
No. 61 Camp Street,
New Orleans;

and further information may be had by applying to Messrs. BARSTOW & POPE, Pine Street, New York.

Locomotive Engines.

FOR SALE, two Locomotive Tank Engines, 4ft. 8½ in. gauge, made by one of the most celebrated and extensive builders in Massachusetts, and ready for immediate delivery. These engines are admirably adapted for fast travel with light passenger trains; weight, 13 tons, with 4 ft. drivers, with leading and trail wheels; cylinders 12½ in. by 20, with a separate cut-off valve. Can be examined at the works of the manufacturer. Apply to H. V. POOR, Editor Railroad Journal, 9 Spruce st., N.Y. 19tf

Boiler and Tank Rivets, Nuts and Washers;

All Sizes of

Bolts and Bolt Ends

for Sale by
BRIDGES & BROTHER,
64 Courtland st., N. Y.

For Sale.

BY the Baltimore and Ohio Railroad Company, 24 crate cars, adapted to Railroad purposes, which will be sold at a reasonable price. For further information, apply to

SAMUEL J. HAYES,
M. of M., Baltimore and Ohio R. R. Co.,
Or BRIDGES & BRO.,
19 tf 64 Courtland st., New York,

To Civil Engineers and Surveyors.

TRANSITS, Level and Surveyors Compasses Manufactured on the most improved principle and of the Best Quality by

THOMAS HUNT,
No. 53 Fulton Street,
1y10* *New York.*

Notice To Contractors.

OFFICE OF THE VICKSBURG, SHREVEPORT AND TEXAS RAIL ROAD COMPANY
Monroe, La., March 8th, 1854.

SEALED PROPOSALS wil be received at this office until the 1st day of June next, at 2 o'colck P. M., for clearing and grading the section of road between the Mississippi river and Richmond, in the parish of Madison—a distance of about twenty miles; also, for clearing and grading the section between the city of Shreveport and the Texas State line, in the parish of Caddo—a distance of about twenty miles; and, also, for clearing and grading a section of twenty mile, beginning at the Ouachita river and running west, in the parish of Ouachita.

Bids may be made for the entire sections, or any portion thereof, not less than one mile, and those proposing to take stock of the Company in part payment, will be most favorably considered. The lines, plans, profiles and quantities of work, together with the specifications, are now ready for examination in the office of the Company. Payments in the proportion of four-fifths of the amounts due will be made at the end of each month or quarter, as may be agreed on, during the progress of the work.

The company reserves the right to accept such proposals as in their judgment will secure the prompt and faithful execution of the work according to contract; or to reject all if none are satisfactory.

Further information may be obtained from the undersigned.

N. D. COLEMAN,
President.
P. J. TOURNADRE,
7t14 *Chief Engineer.*

Railroad Iron.

5,000 TONS T RAILS, about one-half weighing 59 lbs. per yard and the remainder 56 lbs. per yard now in bond and for sale by

JOHN H. HICKS,
2d Feb'y. 90 Beaver street.

Railroad Iron.

1250 Tons Erie Pattern Guest and Co's make, weighing 57½ lbs. per yard, to be shipped from Wales in July and August, for this port—for sale by

BOORMAN, JOHNSTON & CO.,
June 9, 1853. 90 Broadway, New York.

Brass Tubes for Locomotive and Marine Boilers.

THE undersigned having been appointed Agent for the highest respectable manufacturers Messrs. Allen, Everitt & Son or Birmingham, is prepared to take orders, at fixed prices, fly-Brass Tubes of all diameters, for Engines.—For further particulars and inspection of patterns, please apply to

JOHN H. HICKS,
March 1854. 90 Beaver str.

DIVIDEND NOTICE.—The SEMI-ANNUAL INTEREST falling due in this city on the first day of May next, on the following named securities, will be paid on and after that date at the office of the undersigned on presentation of the proper coupons, viz:

The Bonds of the City of Cleveland, (Ohio) issued to the Cleveland and Pittsburgh Railroad Company 7 per cents.

The Bonds of the City of Cleveland, (Ohio,) issued to the Cleveland, Painesville and Ashtabula Railroad Company 7 per cents.

The Bonds of the City of Madison, (Indiana') 6 and 7 per cents.

The Bonds of the City of Pittsburg, (Penn.,) issued to the Allegheny Valley Railroad Company (payable on the first Monday of May next,) 6 per cent.

The Madison and Indianapolis Railroad Company First Mortgage Bonds, 7 per cent.

The Sciota and Hocking Valley Railroad Company First Mortgage Bonds, 7 per cents.

The Indiana Central Railroad Company Mortgage Bonds, 7 per cents.

The Wilmington and Manchester Railroad Company Second Mortgage Bonds, seven per cents.

New York, April 29, 1854.

WINSLOW, LANIER & Co., No. 52 Wall-st.